MEDA-ETE
regional project

Comparative Analyses




E-learning initiatives for teachers and trainers in the Mediterranean region

EDUCATION AND TRAINING FOR EMPLOYMENT (ETE) IS AN EU FUNDED INITIATIVE IMPLEMENTED BY THE EUROPEAN TRAINING FOUNDATION (ETF). ITS OBJECTIVE IS TO SUPPORT THE MEDITERRANEAN PARTNERS IN THE DESIGN AND IMPLEMENTATION OF RELEVANT TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) POLICIES THAT CAN CONTRIBUTE TO THE PROMOTION OF EMPLOYMENT THROUGH A REGIONAL APPROACH.

CONTACT US

MEDA-ETE Project Team
European Training Foundation
Villa Gualino
Viale Settimio Severo 65
I – 10133 Torino
T +39 011 630 2222
F +39 011 630 2200
E info@meda-ete.net
www.meda-ete.net

Comparative Analyses
E-learning initiatives for teachers and trainers in the Mediterranean region

Arnaud Coulon
European Training Foundation
2008

Europe Direct is a service to help you find answers to your questions about the European Union

Freephone number (*):
00 800 6 7 8 9 10 11

(*) Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.

More information on the European Union is available on the Internet (http://www.europa.eu).

Cataloguing data can be found at the end of this publication.

Luxembourg: Office for Official Publications of the European Communities, 2009.

ISBN: 978-92-9157-582-4
doi: 10.2816/11895

Printed in Italy

PREFACE

Teacher and trainer training is one of the most important determinants of the success of reforms in technical and vocational education and training (TVET) systems in recent years in the Mediterranean region[1]. This is based upon the assumption that the role of teachers and trainers in the reform of TVET is a dual one; that of stakeholder and professional[2].

The European Training Foundation (ETF) has prepared several reports on teacher and trainer training in the Mediterranean region which describe regional practices and identify major problems and the actors and institutions involved[3]. These reports have helped governments and international donors to better understand the challenges and approaches of teacher and trainer training in the region, while putting forward examples of good practice. They have also made it clear that similar challenges face teacher and trainer training in the different countries, thus justifying using a regional approach to the field and creating a network of institutions[4] which can contribute more effectively to improving the quality and relevance of teacher and trainer training in the region. Partner countries gave their support to this approach during the formulation of the MEDA regional project Education and Training for Employment (MEDA-ETE).

The MEDA-ETE project aims at supporting Mediterranean Partners in the design of relevant TVET policies that can contribute to promote employment through a regional approach. The project was built on four components: Component 1 centred on setting up a Euro-Mediterranean Forum of TVET for employment; Component 2 centred on setting up Euro-Mediterranean networks of experts in TVET for employment; Component 3 centred on supporting self-employment and the creation of micro-enterprises by young unemployed people; and Component 4 centred on the development of e-learning, aiming at improving the capacity to use e-learning in TVET based on pilot experiences.

This report is a contribution to Component 4. It aims at taking stock, through a comparative approach, of current initiatives in the field of e-learning for teachers and trainers in the region and at promoting the exchange of information and experience between Mediterranean decision-makers and experts.

Writing this report involved defining a framework for the comparative analysis, covering a number of questions: What ICT infrastructures are in place? What are the TVET policies and how do they treat the introduction of new technologies? What are the

1 In the context of this publication, the term 'Mediterranean' refers to the ten Mediterranean Partners – Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, the Occupied Palestinian Territory, Syria, Tunisia and Turkey – that are part of the Euro-Mediterranean Partnership.

2 Grootings, P. and Nielsen, S. (eds), ETF, *ETF Yearbook 2005 – Teachers and trainers*, Office for Official Publications of the European Communities, Luxembourg, 2005.

3 Chakroun, B., ETF, *Innovative practices in teacher and trainer training in the Mediterranean region*, Focus on series, European Training Foundation, 2003.

4 TTT MEDNET.

major initiatives targeting e-learning for teachers and trainers? Which forms do they take? What are the levers and the obstacles for the development of this type of training? What contribution are they making to the overall reform process?

The mere fact of drawing up an inventory of the infrastructures (Chapter 1) and initiatives (Chapter 2) did not seem sufficient for analysing the role that new technology played in the development of TVET systems. The study also allowed for a thorough analysis of a number of case studies covering teacher and trainer training activities. Although they did not always provide exhaustive information on the schemes in place, they do illustrate the main features of the current practices in e-learning in the region (Chapter 3). The case studies were supplemented by an analysis of the *acquis* and a chapter which considers what are the levers and obstacles for the development of e-learning for teacher and trainer training (Chapter 4). The final chapter gives some strategic recommendations for the future, taking into account the lessons learned from past experience and the reforms currently underway.

This report does not claim to provide an exhaustive inventory. Its aim is more modest, that of giving an account of certain realities at a given moment by identifying common tendencies and characteristics in different situations. It relied primarily on data collected by the local experts who were asked to examine ongoing schemes and programmes (certain projects still being in the design phase) that they themselves selected according to criteria set by the ETF team and their own knowledge of the field. Thus we assume that a number of initiatives could not be included (in particular in the private sector where it is sometimes more difficult to map what exists).

The principal author of this report is Arnaud Coulon. At the ETF, the project was led by Borhène Chakroun and Sabina Nari, co-authors of the preface and the closing chapter. This work builds on national reports written by a team of local experts: Abdelaziz Halleb (Tunisia), Ahmad Hiassat (Jordan), Bassem Khafagi (Egypt), Eli Eisenberg (Israel), Fawzi Baroudi (Lebanon), Hassen Zerguini (Algeria), Marwan Tarrazi (Occupied Palestinian Territory), Mohamed Kurdy (Syria), Radouane Mrabet (Morocco) and Soner Yildirim (Turkey).

CONTENTS

1. WHAT INFRASTRUCTURE AND EQUIPMENT IS AVAILABLE?

1.1 Introduction

The 2005 UNESCO world report, entitled *Towards Knowledge Societies*, contains figures demonstrating that 'the ideal of a public knowledge forum […] cannot be taken for granted'. This is because, although the spread of technology and the growing use of the internet give cause for optimism, there is undoubtedly a digital divide in a constantly evolving global information society.

Although indicators such as the increase in the number of internet users around the world – 22% of the world population in 2007[5] compared to just over 3% in 1995 – might lead us to believe that a knowledge society is already happening, the fact remains that it may end up only benefiting a small number of the happy few.

According to UNESCO, 90% of internet users live in industrialised countries; 82% of the world's population account for only 10% of connections. Two billion people are not connected to an electricity grid, 'the precondition of mass access to the new technologies', according to the report. The cost of telecommunications, buying computers and other equipment and providing internet services are still not affordable for many in some countries.

There is a strong correlation between the level of industrial development and access to information: 'The asymmetries that affect the global distribution of people connected to the internet are particularly flagrant[6].'

According to the UNESCO report, this digital divide[7] feeds a second divide: that of knowledge. That this divide should exist between countries of the North and the South is no surprise, but it also exists within societies. Even though access to knowledge is not exclusively dependent on narrowing the digital divide, this is clearly a necessary precondition: 'Issues of technology and connectivity emphasise infrastructures and governance of the network planet. They are clearly crucial but should not be viewed as an end in themselves[8].'

Given this situation, it seems useful to map the countries of the Mediterranean region in order to assess whether the necessary conditions for developing information and

5 Sources: World Internet User Statistics (www.internetworldstats.com).

6 UNESCO, *Towards Knowledge Societies*, UNESCO World Report, UNESCO Publishing, 2005, p.31.

7 This has numerous facets and is influenced by different factors including economic resources, geography, gender, age, language, sociological origin, physical integrity or employment.

8 Op. cit., p. 27.

communication technologies (ICTs) and integrating them into training and education systems are met. This will determine the extent to which it can be used to introduce technical solutions for the training of teachers and trainers. Positioning each country according to several different indicators should make it easier to identify gaps and therefore develop appropriate initiatives.

1.2 Analysis of the current situation – general context

ICTs have undergone rapid expansion in the Mediterranean region in recent years. Of particular note:

- Telecommunications market has opened up to competition in countries such as Lebanon, Morocco and Tunisia. Some exceptions remain, namely Syria where there is still a state monopoly but with a tendency to be circumvented and the Occupied Palestinian Territory where there is a private monopoly.
- Mobile telecommunications have been developed, which are fast replacing landlines. In the Occupied Palestinian Territory, for example, 72.8% of the telecommunication traffic is mobile. In Jordan, there are three times more mobile subscribers than landline customers.
- High speed internet connections are gaining ground thanks to general improvements in infrastructure, especially with the installation of fibre optic cable and ADSL (Asymmetric Digital Subscriber Line). In Morocco 71% of internet users have a high speed connection. Jordan has a total of 11 internet service providers. Other countries still lag behind; in Syria the development of high speed networks is at an early stage and in the Occupied Palestinian Territory, ADSL exists but only at low speeds.
- The cost of using the internet seems to be decreasing; the average hourly cost is US$1.25 in Jordan and between US$0.5 and US$0.84 in Syria.
- The professional use of computers is increasing; in Tunisia and Morocco 90% of companies have computers and half of these are connected to the internet.
- The increase of places offering low cost or even free access to the internet is playing an important role in reducing the digital divide, particularly in rural areas; Publinets in Tunisia, Internet Cafés in the Occupied Palestinian Territory, Knowledge Stations and Community Centres in Jordan and Internet Points of Presence in Lebanon.
- Online presence is growing; the total number of Tunisian websites has increased ten times over the past five years.
- The number of internet users continues to increase in all countries.

All of this goes to show that in countries such as Algeria, Morocco and Turkey the penetration rate of ICTs is growing fast. In the case of Israel and, to a lesser extent, Jordan and Tunisia, we can even start to talk of maturity. But in around one-third of countries, in particular Lebanon, Syria and the Occupied Palestinian Territory, the situation is more difficult and the gap between them and the rest of the Mediterranean countries remains considerable.

A number of government programmes exist which provide a good indicator of the level of political interest and will to develop the use of ICTs in society. Some examples are listed below.

- Tunisia's Family PC programme of 1999: aimed at providing each household with a computer and an ADSL connection.
- Syria's Public Computers programme: aims at providing the Syrian public with low cost PCs and an ADSL light programme.
- Lebanon's national strategy for the development of ICTs with the support of the World Bank, the United Nations Development Programme (UNDP) and the European Union (EU).

Many countries have implemented programmes aiming at modernising public administration by introducing ICTs. In Tunisia for instance, incubator projects such as Cyberparcs, have been launched; there are currently five for 44 companies employing a total of 220 people.

Only Syria is behind in terms of infrastructure development and does not currently have any plans to remedy this. Some projects have been delayed.

In all countries including Israel, a marked digital divide persists, partly linked to geography. The gap between rural and urban areas is often significant; 56% of Moroccans over the age of 12 and living in an urban area have no computer access outside their home while in rural areas the percentage grows to 89%. As well as geography, other factors have a bearing. In Israel for example social status, gender and age are contributing factors. Peculiar to Israel is the divide between new arrivals and those born in Israel, those who only speak Hebrew and those who do not.

Leaving Israel aside for a moment, the number of households connected to the internet varies substantially between countries – 0.4% for Morocco and 38.4% for the Occupied Palestinian Territory. Interestingly there is no automatic link between the availability of adequate infrastructure, particularly high speed and the level of internet access. Outside the home, the rate is 12% in Morocco and 31.8% in the Occupied Palestinian Territory.

In conclusion the findings of the UNESCO report are significant as they suggest that the digital divide may well be compounded by a knowledge divide, thereby further marginalising the weak and less qualified.

1.3 ICTs in education and training

There is little reliable information available on the penetration rate of ICTs in education and training systems. Chapter 2 contains additional quantitative data and highlights the fact that initiatives to promote the use of ICTs are recent and constantly evolving. The following data on internet access and equipment in education give some idea of the situation in different countries.

In Tunisia, 100% of secondary schools, 89% of colleges and 50% of primary schools have internet access. In Syria, 75% of secondary and primary schools have computer equipment but few are connected to the internet. In Lebanon, the number of schools with internet access is still low; ICTs and internet training sessions have not been a great success among teachers who complain that they are unable to access the internet at home and even less at school. In Turkey, 24.1% of secondary school pupils use a computer and 17.6% use the internet. University students are the biggest users, 60% of

the 69% of students with computers. In Israel, about 80% of schools have computers and 66% of these are connected to the internet, most by high speed connections. If we take ORT Israel – a national network of 163 colleges and schools serving 100,000 students – as an example, this provides the following data: 10.6% of students have a computer of Pentium 3 type or above; 90% of computers are connected to the internet; students use resource centres for an average of 23 hours a week; 94% of students have a computer at home; and 87% have internet access. According to a recent opinion poll, in the Occupied Palestinian Territory 60% of those questioned said they had bought a computer for training purposes and 80% of students have a computer at home; 35.7% of people said they were able to use a computer; and 36% of email users use it for education.

In spite of structural and economic problems, the data suggest that there is a good basis for further developing the use of ICTs in education and training and, consequently, e-learning initiatives.

In Algeria, Morocco and Tunisia, national networks of schools and universities already exist. In Tunisia there are some dedicated networks:

- National University Network (www.rnu.tn/) – a network comprising all higher education and research establishments;
- National Agricultural Network (www.iresa.agrinet.tn/index.jsp) – a network of 14 agronomics teaching and research institutes;
- National Health Network (www.santetunisie.rns.tn/) – a network of university teaching hospitals for the purposes of telemedicine.

In Algeria, 800 vocational training centres under the Ministry of Vocational Education and Training are members of the Intranefp network, a dedicated intranet[9].

There are a number of projects which show the considerable effort that has been devoted to developing infrastructure.

In Algeria, plans are afoot to use 102 Very Small Aperture Terminal (VSAT) antennas to link the 48 provincial governor's offices (wilayas) to the network of vocational training centres, the National Institute for Vocational Training and vocational engineering networks, the 33 Cisco academies and other institutions such as the Centre for Studies and Research on Professions and Qualifications (Centre d'études et de recherche sur les professions et les qualifications – CERPEQ) and the National Institute for the Development and Promotion of Continuing Training (Institut national de développement et de promotion de la formation continue – INDEFOC). In Morocco, Marwan[10], the Moroccan Academic and Research Wide Area Network connects all of the country's higher education and research institutions. In Syria, the government is supporting the development of infrastructures allowing high speed access at low cost through the installation of a public data network with a capacity of 250,000 subscribers. The plan is to provide 180,000 new telephone lines in rural areas and to develop a wireless local loop. In Morocco, the e-education project is intended to ensure every school has a multimedia room. Long distance, high speed wireless transmission via WiMAX[11] technology is soon to

9 See www.mfep.gov.dz/Communication/default.htm

10 See www.marwan.ma/

11 WiMAX (Wireless Interoperability Microwave Access): a telecommunication technology providing access to wireless and broadband telecommunication networks.

be introduced. In Ramallah, in the Occupied Palestinian Territory, 17 schools have been equipped with computers and are connected to the Ministry of Education Computer Centre by a wireless network. In Jordan, the Ministry of Information and Communication Technology's Connecting Jordanians Initiative has built a national broadband network comprising 5,000 km of fibre optic cable. It aims at providing high speed internet access to 1.5 million students via a network of 3,200 schools, 8 public universities, 23 community colleges and more than 100 knowledge stations.

1.4 The main international indicators

In order to better understand how Mediterranean countries are doing in terms of developing and integrating ICTs in education and training, the data should be compared to recognised indicators. The World Economic Forum's Networked Readiness Index (NRI)[12] provides a good indicator. It is designed to measure a country or a community's readiness to take part in and benefit from the development of ICTs in order to promote economic growth.

The Networked Readiness Index uses several indicators to arrive at its ranking.

Environment

Measures to what extent the political or economic environment contributes to the development of ICTs. This indicator is made up of three sub indicators: market (existence of human resources and companies capable of supporting the development of a society based on a knowledge economy); politics (strategies, initiatives and rules laid down by governments to support the development of ICTs); and infrastructure (level of access to ICTs and quality of infrastructure).

Readiness

Measures the capacity of the main socio-economic agents such as ordinary citizens, companies and governments to increase the potential of ICTs. This capacity is defined as the availability of appropriate skills, how accessible ICTs are to companies and the use of ICTs by state services and administrations. This indicator is made up of three sub indicators: individuals (equipment, internet access, qualifications); companies (willingness of SMEs and larger groups to use ICTs for economic development and to invest in developing the ICT skills of their staff); and governments (availability of state services online and whether the current legal framework encourages the development of ICTs).

Use

Measures how individuals, companies and government use ICTs and what social changes this brings including changes in behaviour, lifestyle, economic and other benefits. This indicator is made up of three sub indicators: individual uses such as internet usage, access to a telephone or amount of money spent online; commercial uses such as e-commerce and business to business; and government uses such as e-government or benefits to ordinary people from the improved efficiency delivered by the use of ICTs.

12 The Networked Readiness Index is published annually by the World Economic Forum (www.weforum.org/).

The Networked Readiness Index 2007 classification covers a total of 102 countries, including eight of the ten countries featured in this regional study.

Table 1: Networked Readiness Index 2007 classification – position of selected Mediterranean countries in wider ranking of 102 countries

Countries	Overall classification	Environment	Readiness	Usage
Israel	18	19	14	18
Tunisia	35	38	29	45
Jordan	47	49	52	47
Turkey	55	51	61	52
Egypt	63	60	70	72
Morocco	74	67	76	77
Algeria	88	97	83	97
Syria	110	105	111	106

Source: World Economic Forum website (www.weforum.org/en/initiatives/gcp/Global%20Information%20Technology%20Report/index.htm)

These results support the data gathered from the country reports which were used as background material for this report. They give an indication of which countries provide the most favourable environments for developing e-learning, particularly for the training of teachers and trainers.

1.5 Have conditions for implementing e-learning been met?

Of the ten Mediterranean Partners featured, Lebanon, Syria and the Occupied Palestinian Territory are, a priori, countries and territories where the conditions are difficult for ICT usage. Nevertheless there are a number of projects currently underway or already completed which indicate that progress can be made. Particularly, the Medforist[13] project in Syria and the Notre Dame University's project in Lebanon provide evidence that local agents can work together on supporting ICT use and development even in a difficult environment and serve as an inspiration for others.

Although ICTs have the greatest potential for the development of new training methods, certain alternative solutions can be used when there are problems of lack of infrastructure and equipment. Since the beginning of the 20th century, radio, telephone and television have been used to broadcast distance learning courses. Examples include

13 Medforist is a project aimed at implementing a Euro-Mediterranean network for sharing information systems and technology resources.

Radio Sorbonne, the French university radio station established in 1927; the National Technical University in the United States, which has been broadcasting lessons first by radio and later via television since 1946; or the UK's Open University set up in 1969. Another practical alternative is providing offline content through digital supports such as CD-ROMs.

To overcome the various digital divides, the UNESCO report proposes using other media, such as radio or mobile phones, which play a major role in certain developing countries. Mixed solutions, combining old and new technologies, could provide ways of overcoming limitations. In the Occupied Palestinian Territory, for example, 91.2% of households have a television and 41% of Palestinians regularly listen to the radio. These two media could be used to support learning.

Therefore, although the infrastructure and equipment available is an important factor when designing e-learning programmes, alternative solutions can be found if it is not available.

1.6 Conclusion

Several countries provide fertile ground for integrating e-learning into their education and training systems. However, as we have seen above, the situation varies considerably from country to country, both in terms of infrastructure and the penetration rate for ICTs. These variables must be taken into account when designing an e-learning system, all the more so if the aim is to build a solution for the entire Mediterranean region. These differences and limitations will have a special impact on the choice of the e-learning tool as it must be adaptable to the availability of infrastructure and the skills of those involved, including teachers, administrators, technicians, managers and learners.

2. INTEGRATING ICTs INTO EDUCATION AND TRAINING SYSTEMS: WHAT ARE THE NATIONAL STRATEGIES?

Following the European Council meeting on 23–24 March 2000 in Lisbon, and within the framework of the e-Europe Action Plan of which the e-learning initiative is a major component, integrating ICTs into education and training systems has become a priority for all EU countries and their partners in the Mediterranean region[14].

Using multimedia technologies and the internet has the potential to really improve the quality of teaching. This should result in easier access to resources and services, and in the creation of environments promoting and facilitating the sharing of experience and collaborative distance learning.

Several priority areas have been defined, including equipping education and training institutions, implementing quality infrastructure allowing internet access, developing online training resources and a digital environment enabling service provision and the storage of resources as well as developing training reference systems integrating new teaching methods.

Building a knowledge society will rely mainly on existing educational institutions. If we are to achieve this, they will have to face up to big challenges and radical changes in their social and organisational structures. These challenges include:

- developing the concept of learning and in particular lifelong learning as a possible answer to the increasing instability of employment;
- meeting a growing demand for education, especially for higher education;
- coping with an overall reduction in the resources available to meet this demand requiring new forms of cooperation between the public and private sectors;
- the blurring of the divisions between work, study and free time, thereby strengthening the links between formal and informal training and learning situations;
- a growing role for networks and the advent of new technologies in all areas of society.

E-learning is a new tool to help modernise academic and vocational training systems. This modernisation concerns: (i) the infrastructure (to be regarded as instruments); (ii) developing specific skills by the training staff (something which goes beyond mere computer literacy); (iii) developing services and content; and (iv) networking and cooperation at all levels.

14 In view of the cooperation agreements resulting from the Barcelona process which aim at establishing a free trade area between the EU and Mediterranean countries by 2010, the socio-economic implications are far from negligible.

It is therefore important to identify strategies for governments and to clarify how these fit in with other initiatives on ICTs and how they break down into the above four components.

It is also important to identify the key agents and kinds of partnership needed to implement these plans. Above all, it is vital to ensure that priority is given to the training of trainers and teachers as this provides a powerful lever in the necessary process of change in terms of pedagogy, organisation and resources.

2.1 Methods of intervention and the agents involved

In the Mediterranean countries, integrating ICTs in education and training systems is supported by methods of intervention characterised by a formal strategic framework. This comes in various forms – general policy declaration, national charter of education and training, special plan for economic relaunch, e-strategy or master plan for the computerisation of the education system – usually broken down into priority areas and action plans. Most of the action plans include the training of trainers and teachers. This approach is therefore in line with top-down type intervention principles.

These policies are usually initiated by institutions such as the ministries of education, vocational training or higher education, often associated with institutions and bodies in charge of technologies (the Ministry of Post and Information and Communication Technologies in Algeria, the International Telecommunication Union in Morocco, the National Centre of Computer Science and the National Institute of Office Automation and Microcomputer Science in Tunisia, the Ministry of Telecommunications and Information Technology in the Occupied Palestinian Territory[15], the Ministry of Communication in Syria, the National Committee of Informatics in Turkey and the Centre for Educational Research and Development in Lebanon). Other ministries, usually those of employment, agriculture and tourism, are also joining forces, either within the framework of projects carried out by the above or independently.

Beyond this first group of institutional stakeholders, the institutions in charge of training trainers and teachers and the universities are involved in this process, thereby giving the benefit of their expertise in these fields and giving the process more legitimacy.

These public policy instruments contribute significantly as mediators and facilitators, conveying strategic directions in the field of ICTs. They are therefore at the cutting edge of innovation. To complement this, all existing and available resources have to be mobilised in order to implement and support pilot actions.

In Morocco, the e-Morocco strategy pays special attention to training and education through its e-education project, which has three priority areas including training of teachers and trainers. University resource centres and learning centres are expected to participate as members of the network for the delivery of training, within the framework of two major projects: Moroccan Virtual Campus and Interactive Television for Distance Learning. The Office for Vocational Training and Labour Promotion (OFPPT) is also very active as a primary public operator together with the National Advanced School of

15 Note that this ministry has defined a strategic framework for the development of ICTs (Palestinian National Strategy for Information and Communication Technology) which has a human resources development dimension.

Computer Science and System Analysis (ENSIAS) given its mandate and expertise as an engineering school specialising in ICTs.

In Algeria, the government's e-commission is in charge of implementing the national ICT policy. It is supported by the various ministries in charge of action plans covering their own fields. The Ministry of Vocational Education and Training relies on its natural intermediaries – the National Institute of Vocational Training, six vocational training institutes and the National Vocational Distance Learning Centre (CNEPD) – and on private operators in the framework of more or less structured partnerships.

Universities in Turkey began providing distance learning courses more than 20 years ago. In 1982, following a decree giving universities the responsibility for distance learning in higher education, the Anadolu University[16] designed its first distance learning offering on business and administration. In 2001, this university increased the number of courses available and broadened its target audience. It now has around 33,500 registered students. Between 1996 and 2000, six other universities started developing new training methods based on programmes delivered online or via video-conferencing or television. The abundance of projects carried out by the Ministry of National Education has meant that a regulatory authority[17] has been set up to coordinate all resulting projects and training courses.

When it comes to private sector involvement, it has mainly been the large multinational technology companies who have taken part in the reform process. They have been involved in both infrastructure and skills development: Cisco in Algeria and Morocco; Sun in Tunisia; Microsoft in Lebanon, Algeria, Jordan and Morocco; and Intel[18] in Turkey, Jordan, Algeria, Israel and the Occupied Palestinian Territory. These companies sometimes work in partnership with national institutions in charge of ICTs.

There are other actors in the picture who also play an important role. The first of these are foreign governments who usually operate within the framework of cooperation agreements. Examples include those between France and Tunisia, Italy and Algeria, and Germany, Finland, Austria and Japan with the Occupied Palestinian Territory.

A key role is also played by programmes financed by international organisations such as UNESCO in Morocco, Syria and Jordan[19], the United Nations Relief and Works Agency in the Occupied Palestinian Territory or NGOs specialising in the training of teachers and trainers such as World Links in the Occupied Palestinian Territory, Syria and Jordan.

There is a fifth kind of partner whose contribution, unlike that of the multinationals, tends to focus more on training and designing courses. These include local and foreign universities who act as real distributors and providers of innovation, private training centres, providers of teacher training course design, and distance learning content and/or platform publishers. In most cases, there are foreign partners involved such as the French

16 Open Education Faculty of Anadolu University in Eskişehir.

17 Regulation for Inter-University Communication and Information Technology Based Distance Higher Education by the Council of Higher Education in 1999.

18 Intel's Teach to the Future programme.

19 UNESCO has been licensed to deliver the International Computer Driving Licence (ICDL).

company A6-MediaGuide in Algeria or the Swiss company Qualilearning working with ENSIAS in Morocco.

Table 2: The contributors

Agents involved	Nature of their contribution
Ministries, institutions	Initiators, financial sponsors, sleeping partners, providers of infrastructure
Public operators in charge of the training of trainers and teachers, universities	National actors in charge of organising and managing projects, bringing together the main players and organising courses
International technological partners	Technical support and help with designing courses through provision of infrastructure, equipment, learning management system-type tools and standard contents
International donors and NGOs	Financial promoters and initiators interface between foreign expertise and pilot projects, provision of expertise
Providers of training/advice in e-learning, universities, course designers	Planning and design of courses, production of content, tutorial systems and provision of infrastructures and technologies

Although there are many initiatives underway in the field of ICTs applied to education and training, it is important to remember that these arise within a very specific context as the strategic framework will vary considerably according to the players involved.

Intervention strategies sometimes resulting in initiatives diverging

In countries such as Jordan and Morocco, there seems to be a sharp division between the ministry of education and the institutions in charge of vocational training (other ministries and public training operators). So while most of the projects have similar aims and target groups and face the same challenges, there is much duplication of resources and little transfer of good practice.

More surprising still, within the same world, in this case that of vocational training, it seems to be difficult to ensure that initiatives converge. Morocco provides a clear illustration of this problem in terms of the difficulties encountered in transferring knowledge from the Ministry of Vocational Training to the Ministries of Agriculture and Tourism.

In countries where financial, technical and human resources are often in short supply, it is surprising that more effort is not made in trying to harmonise initiatives, promote synergies and avoid duplication.

The Occupied Palestinian Territory provides an example of the opposite case[20]. The Palestinian Education Initiative, supported by the World Economic Forum, is to act as federator, bringing together all those involved in education and training, be they state schools, universities or private entities from the industrial sector, NGOs or other partners. They are to define a framework for common actions and promote the convergence of initiatives as a way of maximising their impact. The high number of foreign actors involved and the large number of projects – there are 14 projects underway which target or indirectly affect the training of trainers – make this necessary. Although it is not yet clear who will manage this strategic plan, the difficult conditions prevailing in the Occupied Palestinian Territory are likely to impose the necessary degree of coherence.

In Tunisia, the government has recently set up a new institution in charge of managing, leading, regulating and assessing all initiatives on e-learning in vocational education and training (VET). In Turkey, the Ministry of National Education is also in charge of vocational training; this helps promote overall coherence in this process. In Syria, responsibility for the vocational training sector is shared between 11 ministries, making it difficult to avoid compartmentalisation and facilitate convergence between initiatives.

The same goes for Israel, where vocational training is under the supervision of both the Ministry of National Education, Culture and Sport and the Ministry of Industry, Trade and Labour. Two structures (Science and Technology Administration and the Manpower Training and Development Bureau), dependent on the Ministry of National Education and the Ministry of Industry respectively, are responsible for numerous activities relating to ICTs. For the former, this includes the field of science and technology: development of programmes and material, training courses for teachers and specifications for equipping laboratories and workshops. For the latter, the range of activities is broader; they cover developing and implementing policies and programmes for vocational training and include an ICT component (research and development on material, pedagogical tools and ICTs).

In all countries, it is difficult to identify which kind of structure is or will be in charge of managing, leading, regulating and assessing e-learning initiatives. Only Turkey and, to a lesser degree, the Occupied Palestinian Territory have given an indication. In Turkey, the National Committee of Informatics, associated with the Council for Higher Education, is to act as a catalyst and a coordinator for the various universities wishing to take the plunge. It will be responsible for validating projects prior to launch. In the Occupied Palestinian Territory, the Palestinian Education Initiative will also act as project policeman to ensure convergence of initiatives and monitor implementation of projects.

Rather short-term strategic frameworks

With the exception of Israel and Turkey, the strategic frameworks for ICT initiatives in education and training are relatively recent. Many started between 2002 and 2007. Considering the various stages of a product's lifecycle[21], we are currently still at the launch phase. Therefore it is difficult to gather any significant data on the results and impact of the various action plans, given that most of them are still at an early stage.

---

20 Even though, as far as universities are concerned, the same symptoms sometimes occur, it would seem that each university has its own distance learning platform or learning management system.

21 Study, launch, growth, maturity, decline.

These strategic frameworks are relatively short term when you take into account the size of the changes expected – five years in Algeria, three to five years in Morocco, five-year plans in the Occupied Palestinian Territory, four years in Tunisia. This may result in problems during the implementation phase; as the international experience shows, the time required for social innovation is very difficult to define and therefore even harder to budget for.

Israel and Turkey are exceptions to the rule however as both are operating with a long-term strategy. As mentioned earlier, Turkey has been investing in distance training for more than 20 years and has been using ICTs since the beginning of the 1990s. In Israel, introducing ICTs in education began more than 30 years ago when the government management committee decided to introduce the use of computers in the education system. Some schools started using computers in the 1970s to teach BASIC software and VET schools concentrated on applications associated with digital command machines. In the 1980s, courses were extended to include other areas and the Ministry of National Education, Culture and Sport set up specialist departments in charge of hardware and software. In 1993, the ministry drew up a plan for integrating ICTs in the Israeli education system, including financial, organisational and pedagogical frameworks, to be developed in four phases between 1994 and 2006.

These two countries are clearly benefiting from their experience and from a certain degree of maturity in the management of innovative projects. They continue to launch new initiatives. However, as with many of the EU countries, initiatives specifically designed for vocational training are much more recent.

2.2 The challenges and how these translate into action plans

Separate but related challenges

All the different initiatives underway in the region share a common goal, namely the modernisation of training and education systems. Reforms aim at upgrading or developing new skills in order to face up to the challenges of a changing labour market environment, the advent of globalisation and of the knowledge economy and the need to compete with other countries in the European and international arena. Most initiatives undertaken in the area of ICTs in education and training are part of an overall strategy with broader goals.

The challenges of integrating ICTs in education and training cannot be viewed separately from the broader challenges of reforming an education and training system in its entirety. They touch on many different social, cultural and pedagogical aspects and cannot be seen in isolation. If this initiative is to succeed, it calls for the readiness of the whole teaching and learning environment. This includes the question of infrastructure and equipment but what is much more important is the readiness of the players involved.

An analysis of the country reports highlights a number of challenges common to all ten countries. They can be grouped into strategic, economic, organisational, pedagogical and social challenges.

1. Strategic challenges:

- adapt the vocational training system to fit current economic and social changes;
- modernise and reform the training system to meet the demand of the labour market for ICT skills;
- facilitate the upgrading of ICT skills of the unemployed;
- introduce dynamism and innovation into schools;
- support the development of an information society.

2. Economic challenges:

- increase the effectiveness and efficiency of the education and training system;
- reduce training costs;
- promote public-private partnerships and generate new commercial opportunities;
- develop the technology sector.

3. Organisational challenges:

- absorb the increasing numbers of students;
- absorb the flow of young dropouts;
- deal with problems of infrastructure linked to the growing student numbers;
- facilitate access to training for people living in rural areas;
- bring universities closer to users;
- localise training.

4. Pedagogical challenges:

- support the progress and development of pedagogical practices and improve the quality of service;
- encourage individualisation and independence of pupils;
- promote the development of learner-centred models of learning;
- facilitate the access to web resources and develop solid basic skills, a global vision of the world and a spirit of enquiry.

5. Social challenges:

- combat the digital divide and technological illiteracy;
- develop a digital culture to prepare individuals for a knowledge society;
- make the education system more equitable;
- develop lifelong learning.

Interactive Television for Distance Learning

In Morocco, the Interactive Television for Distance Learning project clearly illustrates both the challenges in terms of localisation of training and the logic of partnership that could be used to support ambitious projects. Launched in 1998 by the Ministry of Education, in partnership with UNESCO, the International Telecommunication Union, ENSIAS, the CNED (France's leading distance learning operator), the International Audiovisual and Production Training Centre (CIFAP) and a private company, Trilogic, this initiative serves as a good example in terms of the target group and the overall organisation of the system. The project, which aimed amongst other things at boosting the skills of primary school teachers working in rural areas, enabled 600 people in five different provinces to receive training.

The system is based on different components:

- distance learning access points acting as receiver sites in each of the five provinces – a total of 11 learning centres have been set up, equipped with computers and a satellite connection to the presentation centre in Rabat;
- a broadcasting centre located in Rabat;
- a high speed line and online training modules;
- an onsite and distance tutorial system.

A comprehensive approach made up of several components

Adopting a comprehensive and systemic approach is one of the conditions for achieving a successful integration of ICTs into the education and training system. However, it seems that designing and putting in place major systemic reforms remains a big challenge and many countries still tend to address the different weak areas separately, thus resulting in fragmented initiatives rather than concerted action. This is certainly the case in countries where the main priority is developing infrastructure and technology. But in other countries such as Turkey and Israel, the priority is no longer providing schools, universities or training centres with computer equipment. They need to put in place consolidated initiatives that involve the main stakeholders and key players so as to be able to develop or adapt appropriate strategic, pedagogic and methodological models that can provide a quality service.

Israel has come up with a long-term strategy for integrating ICTs in education and training that aims at promoting technological and social innovation at the same time. Additionally, quality is assured by a continuous monitoring of the progress and results achieved[22], while a long-term financing plan has provided financial sustainability. In terms of management, the plan was structured around a network of local intermediaries to manage and monitor the process[23].

22 By reference to Deming plan-do-check-act cycle.

23 The sociology of innovation talks about building a socio-technical network, the primary condition for innovation.

The plan focused on three main areas: equipment, infrastructure and basic training in ICTs. Training included the use of ICTs in education and training contexts as well as developing appropriate pedagogical models.

However in most countries, as mentioned earlier, initiatives tend to be multiple and tackle each issue separately. They typically address a number of areas:

- use of multimedia production centres and production of digital material, educational software for teachers, trainers and students, sharing of training resources through a portal;
- how to create and use a digital environment (educational sites, virtual libraries, distance learning platforms);
- standardising curricula, introducing a computer module in all professional specialisations;
- training teachers and trainers or the whole educational community in ICTs;
- use of ICTs in the training of trainers and students via distance learning and training.

The development of appropriate multimedia material represents a real challenge for the Mediterranean region. In most countries the multimedia material publishing market is almost nonexistent. There is therefore an urgent need for these countries to work towards freeing themselves from foreign service providers[24] and to start producing local digital material[25] themselves as well as overcoming language barriers particularly in the case of the Mashrek countries.

Morocco, Algeria and Tunisia are working together in this area by setting up production centres to both develop relevant and contextualised training material and enhance national expertise in this field. Morocco's virtual campus produces scientific material; the Virtual Professional Teaching Centre in Algeria has set up a multimedia production centre while Tunisia's Virtual University coordinates the production of digital material in all Tunisian universities. Outside of universities however, the production of digital material specific to vocational professions is either poor or nonexistent in all of the Mediterranean countries.

In Jordan, the Ministry of National Education's strategy for integrating ICTs in education and training has three priority areas: programmes, training and professionalisation of teachers, and infrastructure. The first area concentrates on digitalising content and aims at achieving the following objectives by 2008:

- implementing the EduWave platform;
- developing the e-Math programme for levels 1 to 12 (sponsored by Cisco and with development by Jordanian company Rubicon);
- launching the e-Arabic programme (sponsored by France Telecom and Rubicon);
- launching the e-Science programme (sponsored by Fastlink and Rubicon);

24 A number of projects could not have come about without the provision of programmes and packaged material by partners such as Cisco, Intel or Sun.

25 Purchasing off-the-shelf material may be a good strategy when the areas concerned are sufficiently general and do not require much contextualisation. The Virtual Postal School in Tunisia is using translated and scripted material from the Universal Postal Union for its pilot in e-learning, developing 60 courses (use of universities for editing and scripting, use of private companies for development).

- launching the e-Information and Communication Technology programme (sponsored by Microsoft with development by the Jordanian company Menhaj).

In Israel, the Ministry of Education has tackled the problem of how to get access to a critical mass of digital content. In June 2003, it decided to start building the National Digital Library for Education and Culture. This library is to contain material from numerous sources validated according to specific criteria which have added value in pedagogical terms. It will be aimed at students, trainees, teachers, teaching staff at all levels as well as the general public. It is already operational and has started to distribute educational websites, digital and online courses and articles.

In the case of Syria's Virtual University, the content is totally supplied by external organisations. There are currently 16 universities from the US, Canada, the UK and France providing content and courses through the university. All courses are accredited by the Syrian Ministry of Higher Education.

When it comes to training for developing or upgrading skills in ICT, data gathered show that in most Mediterranean countries a lot more effort and investment is needed although countries such as Israel, Jordan and Turkey have already made a large investment in this area. Jordan, for example, plans to train Ministry of Education's staff how to use basic ICTs and all teaching staff how to use ICTs for education and training.

In conclusion, it would seem that most initiatives are still focusing mainly on technological development. Experience has shown that countries must achieve a basic level of technological development if e-learning is to be successful. It is also true that most of the initiatives on integrating ICTs in education and training come from either international partners whose core business is in the technological field such as Cisco, Intel and Microsoft or public/private educational scientific institutions such as ENSIAS in Morocco. As a result, plans for integrating ICTs in education and training tend to focus initially on technological development and pay little attention to methodological, pedagogical and education aspects.

Ambitious objectives to be achieved

In almost all countries, governments have set specific targets relating to the use of ICTs in education.

In Morocco, the aim was to equip 8,604 schools and colleges with about 104,000 computers and 17,200 printers in 2005/06. As far as ICT training is concerned, the plan was to retrain 10,000 people, train 1,000 engineers each year, 2,000 technicians, 2,000 graduates in applied sciences (by 2005, then twice as many by 2010), and to raise the awareness of 230,000 teachers and 700 technicians in charge of maintenance by 2008.

In Tunisia, the National Institute of Office Automation and Microcomputer Science already hosts a thousand school websites and all teachers have their own email address. The Ministry of Higher Education has started digitalising 285 courses using 12 digital production workshops and is aiming at training 60,000 students in computer science and telecommunications by 2010. Nine ministries out of 25 have already planned pilot actions in distance learning.

In the Occupied Palestinian Territory, the School Net project has launched an online mathematics programme in 140 schools within the framework of the Palestinian Education Initiative. In parallel, 80 teachers are to be trained in the use of ICTs.

In Syria, the Ministry of Education's ICTs strategy involves connecting 1,000 schools up to regional government and linking the ministry's network to the internet. With support from UNESCO, the International Computer Driving Licence (ICDL) project aims at using 15 training centres as assessment and certification centres in different regions. An agreement has been signed between the Virtual University and the Youth Union for the use of 14 distance learning access points. Some 680 trainees, mainly living in rural areas, have been trained in Windows and Microsoft Office in actions carried out by the Fund for Integrated Rural Development of Syria (Firdos). The joint Firdos-World Links programme aimed at training 550 teachers in two years.

In Turkey, the Education for the Future project had the initial aim of training 50,000 teachers in ICTs over three years. So far, 30,000 have been trained and the aim is to train another 200,000 teachers by the end of 2010.

In Jordan, the Ministry of Education has trained 50,000 out of 60,000 teachers, comprising 85% of the total. Some 25,000 have been awarded the International Computer Driving Licence.

In conclusion, all countries have set ambitious targets in terms of infrastructure and access to the internet. What is more, Mediterranean countries are also investing in upgrading teachers and trainers' skills to make best use of these planned investments.

2.3 What provision has been made for teachers and trainers?

Initiatives having a direct or indirect impact on the skills of teachers and trainers

The training of teachers and trainers is a particularly important aspect of ICT initiatives in education and training. It is a necessary process since it is difficult to plan any modernisation of the system without involving these key knowledge workers. At the same time it cannot be claimed that current efforts are focusing primarily on the issue of teachers' professionalisation. In fact, a modernisation process which can also be sustainable should go beyond the question of developing a digital culture among teachers; it should include more general methodological, strategic and long-term objectives for lifelong learning in a knowledge society.

A good number of projects focus on training in ICTs. Some examples are to be found in Morocco, such as the European Computer Driving Licence (ECDL) project carried out by the State Secretariat for Vocational Training and the OFPPT in partnership with Cisco, or the Jordanian initiatives which have seen 85% of teachers trained and 40% given their ICDL.

Israel, Jordan and Turkey have gone even further and tried to tackle the thorny issue of the impact of ICTs on education and training. Only a few projects address the

question of how it is changing the job of teaching and the skills required as well as professional practice and related organisational models. What is more, among the initiatives proposed in this field, it is hard to tell whether they can really have an impact on the structure and organisation of training.

Thus it seems that although public operators are very active at designing and delivering ICT training for teachers, they do not question how the use of ICT will affect their own organisational structures and strategic modernisation. This could be explained by the fact that, as already mentioned, the issue of e-learning is tackled primarily from the point of view of technology. As a result, actions usually provide initial training in ICTs such as basic ICT skills, how to use Windows, Microsoft Office or the ECDL.

In some countries the situation is changing. For example, in Jordan in 2007 the Vocational Training Corporation (VTC), one of the country's main vocational training providers, set up an e-learning division to develop courses for teaching staff and to a lesser extent students. In June 2008, the VTC e-learning portal was officially launched[26].

This represents a promising start, although the Ministry of Education is keen to provide certified training in ICT to all of Jordan's teachers. Already initiatives such as ICT Literacy Training and Certification and the Use of ICTs in Teaching and Learning have trained 50,000 teachers in ICDL, including 2,100 from the vocational training system; moreover 100 professionals have been trained in course planning and design specific to e-learning.

However in a number of countries the training of trainers/teachers suffers from structural problems[27] which ICTs can only partly resolve. According to the country report on Lebanon, 'little emphasis is given to teacher and trainer training, particularly through ICTs. […] training to upgrade teachers' skills is not teachers' first priority; better living conditions and professional rewards were the highest priorities' (p. 16).

In conclusion, the training of teachers and trainers can take advantage of some initiatives either national or in partnership with international donors. However, the system itself needs to be improved and integrating ICTs can only partly solve the problem if not, in some cases, provide more challenges. What is clear is that the changes brought about by the fast development and penetration of ICTs in Mediterranean countries do have the positive effect of stimulating further thinking on the role of education and training, on the need for new skills and the need to reform teacher and trainer training.

Initiatives re-examining the position of vocational training

As mentioned earlier, in the field of vocational training e-learning has serious difficulties in establishing itself[28]. Initiatives remain isolated and scattered throughout the Mediterranean region.

---

26 The portal has been developed on an open-source platform (Moodle) and is designed to manage and deliver online courses.

27 See ETF, *Innovative practices in teacher and trainer training in the Maghreb countries*, Focus on series, European Training Foundation, Turin, 2002.

28 For example, of the ten current or future projects in the Occupied Palestinian Territory, only one is dedicated to vocational training. This project aims at providing training in the use of ICTs to 200 teachers.

For example in Tunisia a ministerial circular 'requires' that each ministry allocate 1%–5% of training credits via a pilot action in e-learning (computer science, English, others). Nine ministries are acting as pilots. Moreover, the National Centre for Continuing Training and Professional Promotion (CNFCPP) has launched an Open School for Workers project using the higher promotion of labour institutes (IPST). This virtual school provides a means of online distance learning[29] and almost 600 students enrolled in 2007.

E-learning has more chance of being introduced in the vocational training sector in countries where the ministries of education have taken the initiative to first introduce e-learning in universities and then in vocational training. Whether this has to do with the general positioning of vocational training, particularly initial training, within the education system requires further analysis. It may be that this is a further consequence of the often negative perception of vocational training in wider society as is the case in many European countries.

The demands e-learning makes on human, financial and technical resources means that the contribution of external partners is vital. Support can take the form of cooperation projects providing funding or public-private partnerships providing expertise or turnkey programmes. For example, in Jordan, Al-Balqa' Applied University has benefited from the support of the Euro-Jordanian Action for the Development of Enterprise for developing new curricula, training resources and methodological support. It has also helped organise work placements for Jordanian trainers and managers in training organisations in Europe.

In other countries, where the ministry of education is responsible for the whole of the education and training system including vocational training, actions in the field of e-learning may converge. For example in Syria all initiatives carried out by the Ministry of Education automatically include vocational training. In Turkey numerous projects launched by the Ministry of National Education relate to vocational training and most of these projects have advanced beyond the stage of merely combating technological illiteracy. The universities of Sakarya, Mersin and Cukurova offer distance programmes accessible in 490 professional schools on subjects such as management, industrial electronics or industrial automation.

2.4 How programmes are funded

Implementing these strategies calls for a considerable investment of resources. Quantitative data provided below give us an indication of the cost of training, developing material and improving infrastructure. Unfortunately, only three background country reports out of ten provide information on the financial means used to achieve the ambitious objectives set by governments and institutions concerned.

In Algeria, 11% of the budget allocated to the Special Plan for Economic Development is dedicated to ICTs, that is to say €55 million on top of the initial budgets of the ministries involved. Furthermore, the project to set up a virtual vocational education centre will rely on €1 million of funding from the Italian government with contribution from the National Vocational Distance Learning Centre. Moreover, €500,000 has been paid out to the seven universities to finance equipment and the training of teachers for the

29 See www.ipst.edunet.tn (site in French or Arabic).

development of digitalised material. At the same time, certain projects have had to slow down the flow of beneficiaries due to a lack of funding.

In Israel, the National Digital Library project has raised US$9 million for the first four years while the Ministry of Education's call for tenders for the development of e-learning courses and websites is worth around US$65,000 for each teacher training institution.

Chapter 3 below offers more detailed information on the types and amounts of funding for selected projects that have been described in the country reports.

The lack of data makes it hard to arrive at a definite conclusion, but some preliminary assumptions can be made on the basis of the country reports. These include:

- the training of teachers and/or trainers is not the main focus of all projects;
- only the use of public-private partnerships will make it possible to raise necessary funds;
- international support via cooperation and development agreements including the work of the United Nations and NGOs is crucial for the implementation and sustainability of new systems;
- contributions from industry such as expertise, infrastructure, material and programmes can not only make a difference in terms of funding but can also provide human and technical resources and economy of scale.

2.5 Conclusion

The challenges of integrating ICTs into education and training systems are many – strategic, economic, organisational and pedagogical, but also more generally societal. A number of initiatives have already been undertaken with the support of public, institutional and private partners. Only by using partnerships such as these can the success of such initiatives be guaranteed. These initiatives mainly address questions of technology and issues relating to infrastructure, and tools such as distance learning platforms or digitalised material seem to be at the fore. However these tools will not make a difference without a change in teaching practices, something which has knock-on effects for the skills and therefore the professionalism of the main agents in education and training systems – teachers and trainers. Moreover most countries seem to be concentrating on training in the use of ICTs and computer science in general education rather than in other parts of the system; vocational training does not appear to be a priority.

Two areas of work are particularly important in the development of new training methods within training and education systems:

- increasing expertise in training and pedagogical fields; this increase must result in more in-house expertise, which until now has been subcontracted to partners;
- developing digitalised material in Arabic in order to facilitate access to online material for a greater number of people; it seems important here, as elsewhere, to develop in-house expertise in training institutions and bodies.

3. CURRENT E-LEARNING INITIATIVES FOR TEACHERS AND TRAINERS

The integration of ICTs in education and training poses challenges to the teaching and training professions, as any other significant change in the labour market and in the society as a whole would do.

Skills of training providers need to be regularly updated in light of developments in the overall training environment and the changing needs of the labour market. As well as the traditional skills that constitute the core of the teaching profession, new activities, often linked to the introduction of ICTs, are one of the big drivers in the demand for new skills of teachers and trainers.

This need for new skills means that training, support and professional development must be rethought so as to put learners at the centre in a learning environment that offers them more autonomy as well as more flexible teaching and training methods.

The ten country reports which are the basis of this report have put forward 25 initiatives as examples of innovative training and teaching methodologies. These projects have been analysed in order to pick out the following four elements:

- the real issues and aims of the training of teachers and trainers in and through e-learning;
- the project promoters and initiators;
- the models implemented;
- the management and general structure of projects.

These elements have been selected as they are considered good variables for identifying the strengths and weaknesses of the models proposed as well as what makes projects feasible to implement and sustainable for the future.

The case studies conducted in the context of the country reports made it possible to create a detailed profile of each project (see Table 4, p. 35). About half of these projects are dedicated to trainer and/or teacher training. One case – that of the Online Conference in Teacher Education in Israel – is something of an exception as it relates primarily to an informal and descriptive mechanism.

3.1 Promoters, challenges, target groups and objectives

Project promoters

In more than 90% of the projects studied, the promoters cooperate in groups of two or more.

A first group of promoters includes the various ministries of education and/or the institutional structures responsible for the training of teachers and trainers. This is because, when designing a project in the field of teaching and training, it is almost impossible to move away from existing models and training paths decided by public institutions in charge of the training of teachers and trainers. Morocco and Tunisia provide good examples of this kind of public promoter.

In Morocco, a first group of promoters includes the State Secretariat for Vocational Training and the OFPPT. These two institutions are very active beyond their core missions in launching pilot schemes, raising awareness and providing conduits for innovation and designing and providing for a wide range of courses in various vocational training sectors.

In Tunisia, one of the promoters is represented by the National Centre for the Training of Trainers and Training Development (Cenaffif)[30]. Cenaffif is currently trying to reform the existing teacher and trainer training system to make it more flexible and modular and tailor it more closely to individual training needs. The current system consists of 10–12 weeks' training covering ten modules before teachers start work. In-service training consists of specific sessions to improve teachers' technical and pedagogical skills.

Universities make up the other big group of promoters, mainly because they play a key role in research and development and offer a rich source of innovation. One of the limitations found with projects promoted by universities is that they are rarely institutionalised and often focus on reforming narrow programmes and curricula in order to respond to the need to remain competitive in their specific fields.

In the projects analysed, partners working with public institutions or universities include:

- multinationals or local technology firms,
- NGOs,
- institutions such as UNESCO, foundations providing technical and development assistance, private content developers, training bodies, groups of companies and, in one case, a chamber of commerce and industry.

Main challenges in teacher and trainer training

It is not easy to identify the challenges facing teacher and trainer training by analysing all 25 projects, but taking a closer look at the objectives of the projects specifically targeting teachers and trainers allows us to sketch some of the gaps and needs that they are trying to address.

- *ICT skills.* As mentioned above, many projects are designed to simply upgrade computer skills. The ICDL is one example; others include the Cisco programme and Microsoft certification.
- *Extend and widen training opportunities*. The project of the Middle East Technical University in Turkey is a prime example. It aims at facilitating access to training for people subject to geographical or occupational constraints, training university students in information technology in order to meet shortages in the labour market

30 See Cenaffif website: www.cenaffif.edunet.tn/

and helping students improve their vocational skills. Other projects seek to develop teaching techniques and expertise in innovative training management. These include the Innovative Teachers Programme (ITP) project in Lebanon, run by the Eduware company, and the Use of ICT in Teaching and Learning project in Jordan, implemented in partnership with Intel and World Links.

- *Reorganise or replace existing training opportunities*. The Jordanian project Enhancing Technical Training and Employment Opportunities for Jordanian Women is designed to develop a frame of reference for training in the textile industry in the light of job profile changes resulting from the incorporation of ICTs into production processes.
- *Provide new training to fill gaps in provision*. The Medforist project in Syria has helped to create training courses in e-business, for which there was no training provision in the past.

What stands out from the projects analysed is that teacher and trainer training is still seen as an end in itself with little reference to the end user. If the integration of ICTs and its growing use in education and training implies reforming the whole education and training system, the projects that aim at re-skilling teachers must also take into account the learner. This should be done by including a training needs analysis at the start of the project in order to understand what the trainer needs in terms of new skills. This way teachers and trainers would in turn be able to identify what they should offer learners.

Lebanon's Innovative Teachers Programme, promoted by Eduware under a public-private partnership, was structured from the outset on the basis of a needs assessment. This was conducted through interviews with educational establishments and helped identify what teaching skills they needed. However the needs of teaching staff do not seem to have been the subject of specific analysis and the same applies to the needs of learners[31].

The Medforist project in Syria, although the product of a European approach, is one of the rare exceptions. It included analysis of the local e-business market, something which made it easier to take into account the needs of potential trainee teachers.

Target groups

In the 25 projects analysed, the target groups differ widely in terms of quantity and quality. Initiatives aimed at raising awareness in ICT and developing computer skills are generally designed for large numbers of trainees, whereas training initiatives in more specialised areas have smaller groups of beneficiaries.

Objectives and terms of reference

As stated above, projects seem to fall into three categories: those that aim at giving people general training in ICT and certain kinds of software, those that are more sharply focused on the uses of ICT in training processes and those with a business orientation.

31 'An examination of interviews, data and reviews of relevant documents obtained from Eduware showed [that] there is a strong emphasis on meeting the professional needs of teachers in the public sector without any reference to the nature of professional needs schoolteachers from the public sector would consider relevant to their teaching and professional career […] Although the feasibility of these objectives is not based on assessment of student learning needs in schools in Lebanon' (Lebanon background report).

Some frames of reference come from partner organisations, most of which are technology companies operating as networks such as Intel (the Intel Teach to the Future initiative is being run in five countries) or Cisco (in Morocco and Algeria). Other partners such as Microsoft (Lebanon, Algeria and Morocco), World Links (Jordan and Syria) and UNESCO's Cairo Centre (the Occupied Palestinian Territory, Jordan and Syria), which is responsible for ICDL certification in those countries, also maintain a high profile.

Around 36% of training schemes lead to certification. As a rule, the certificates are provided by manufacturers of technology and applications, such as Cisco and Microsoft, or are awarded under the ECDL or ICDL schemes. Participants in the Medforist project have been awarded certificates through Grenoble Graduate School of Business. For its part, Cenaffif in Tunisia has developed four modules for the training of trainers, designed to impart basic ICT skills, show how to conduct a training sequence, apply educational psychology and use communication in training.

In an ideal world, training needs assessment should focus on the quest for change, innovation or improvement and the design of training programmes should be based on the identification of new skills needed in any institution wishing to introduce ICTs. However, data suggest that such an exercise is rarely attempted.

3.2 Main scenarios for the implementation and organisation of training measures

Level of ICT integration in training measures

All measures of teacher and trainer training mapped by our research involve total or partial integration of ICT. The level of integration of such technology, however, varies from one to another. These measures are described according to a reference framework based on the Competice project management tool[32]. The Competice framework proposes five definitions of e-learning taking into consideration the degree of integration of ICT. These are (i) face-to-face training enriched by using ICT; (ii) face-to-face training improved; (iii) slightly less face-to-face training; (iv) diminished face-to-face training; and (v) face-to-face training almost nonexistent. A detailed description of the framework is available in Annex 1.

Available data do not always describe the exact scope of the measure, therefore the following table should be regarded as a rough guide.

32 Compétice Study – a tool for piloting competence-based ICT projects. See www.educnet.education.fr/bd/competice/superieur/competice/index.php (in French only).

Table 3: Categorisation of the various measures

Scenario: initiative resulting in a greater or lesser degree of ICT integration	Number of measures/projects
(i) Enriched face-to-face learning	8
(ii) Improved face-to-face learning	
(iii) Slightly less face-to-face learning	
(iv) Diminished face-to-face learning	5
(v) Almost no face-to-face learning	
Impossible to determine	11

The various scenarios for the integration of ICT into training processes have an indirect impact on the general organisation of the initiative, the service provision, the learning situations offered to learners and the associated economic model. They also indicate the degree of change in the training processes.

It should be also noted that there is no direct correlation between the level of ICT integration and its use. This is clear, for example, in some initiatives where, despite high ICT content, no distance learning has been involved. 'In three cases, there is no distance learning. However the training material is e-based and available offline on CDs. The only online access is for collecting information and working on collaborative projects using the internet[33].'

E-learning projects: a conceptual framework

When we talk about innovative training initiatives as opposed to traditional ones, we touch on projects with a diverse range of objectives, content and target groups. We should be wary of automatically categorising a project which has ICT content as an e-learning project. The concept of what exactly constitutes e-learning and the related idea of open and distance learning is hard to pin down.

So what is meant by open and distance learning? In Europe[34], it is defined as any form of flexible study the effectiveness of which does not depend on the physical presence of the teacher and learner but which nevertheless benefits from the organisational and teaching activities of a training establishment. This definition stresses the fact that it is a formal training process.

What is meant by each of the terms 'open' and 'distance'? In Europe[35], open learning is defined as 'any form of learning which includes elements of flexibility making it

33 Jordanian national report.

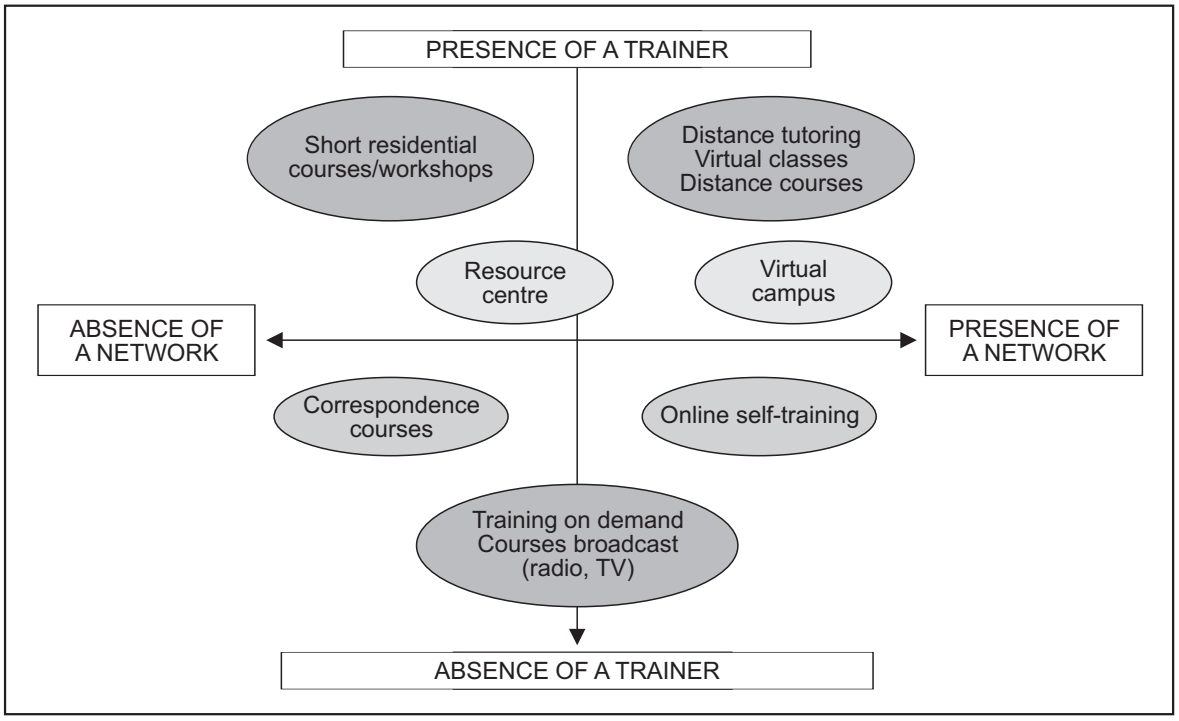
34 European Commission, Call for proposals DGXII-DGXIII, TFRH, March 1994.

35 European Commission, *Memorandum on open distance learning in the European Community*, COM(91) 388 final, 1991.

more accessible to students than courses traditionally provided in centres of education and training'. These elements include content, structure, time, teaching mode and media. The memorandum defines distance learning as 'any form of study not under the continuous or immediate supervision of tutors'. These definitions stress the autonomy of the training process. A measure may therefore constitute distance learning without being open and vice versa.

It is often difficult to identify models. In the diagram below, we present a possible categorisation of measures in the field of open and distance learning[36].

Categorisation by trainer/learner contact and electronic networking



Open and distance learning measures are either termed simple, i.e. comprising a single elementary form, or hybrid, combining two or more forms.

These forms also correspond to different economic models, production processes and occupations. Some can be very product-centred[37], such as correspondence courses, online self-training and even, albeit to a lesser extent, short residential courses and workshops, virtual classes and broadcast courses. Others, by contrast, tend to be more service-based[38], particularly resource centres and virtual campuses. Lastly, the form of delivery can be intended for small or large numbers of beneficiaries. Short courses and workshops, resource centres and even virtual classes are ideal forms for larger numbers, whilst virtual campuses, self-managed online learning and television broadcasts are more useful for small numbers of learners.

36 This is based on the work of Bernard Blandin of the CESI group. See *Actualité de la formation permanente*, No 160, published by the INFFO Centre.

37 In other words, the service focuses on the delivery of content.

38 Learner support is provided before training (reception, profiling and explanation of requirements), during the training process (technical, methodological and educational tutoring and motivation) and afterwards (assessment and transfer assistance).

Table 4: Categorisation of measures described in national reports

Projects/ measures	Types of measure						
	Virtual campus	Self-training online	Virtual classes	Resource centres	Broadcast courses	Correspondence courses	Short residential courses/workshops
Morocco							
ECDL certification				✓			
Med Net'U				✓	✓		
MEDA I & MEDA II							
Cisco certification				✓			
Algeria							
Microsoft School contract				✓			
Cisco project				✓			
Serpolet project		✓					✓
Virtual Vocational Education Centre	Not yet operational						
Tunisia							
Cenaffif	✓						
Syria							
World Links Professional Development				✓			
Medforist	✓						✓
E-learning services		✓					
Turkey							
Information Technology Certificate Programme	✓						
Training Master Trainers in Ostim				✓	✓		
Foreign Language Training through Distance Learning		✓					
Lebanon							
Eduware				✓			
CRDP Innovative Teachers Programme							✓
IPNET							✓
Virtual Learning Environment at Notre Dame University	✓						

Projects/ measures	Types of measure						
	Virtual campus	Self-training online	Virtual classes	Resource centres	Broadcast courses	Correspondence courses	Short residential courses/workshops
Jordan							
ICT literacy training and certification				✓			
Use of ICT in teaching and learning				✓			
Enhancing technical training and employment opportunities				✓			
Israel							
Development of a virtual teaching and learning environment in industrial schools	✓						✓
Design and development of e-learning courses in pre-service teacher training	✓						
Online Conference in Teacher Education	✓		✓				

It should be noted that most of the initiatives listed above involve more than one basic form of delivery. They are hybrid measures in which learning situations alternate – in some cases between face-to-face and distance learning. The Training Master Trainers in Ostim project in Turkey, for instance, is built around the acquisition of procedural know-how and theoretical knowledge in various specialist areas using CD-ROMs and including simulations of hydraulic and pneumatic circuits. This approach takes account of the different pace at which individuals learn and forms part of a system of face-to-face group training combined with weekly half-day practical sessions in dedicated laboratories.

As well as this use of more than one form of delivery, measures based on resource centres predominate. These centres serve to combine the presence of a trainer with access to digital resources, both offline and online. It may therefore be deduced that the amount of distance learning remains low despite the use of tools such as distance learning platforms and virtual campuses.

It should be also noted that in the case of MEDA-ETE project Component 4 on e-learning, developing a pilot course through an open source platform clearly required more face-to-face sessions than originally expected. This shows that learners still perceive direct contact with the trainer as very important.

Choice of educational model

With regard to educational strategies, the country reports often refer to the theory of e-learning, but the definition of the term never really goes beyond an almost systematic reference to the learner-centred approach and the associated concepts of individualisation and self-managed learning.

Regrettably, the reports do not provide the sort of information from which it would be possible to ascertain the precise level of individualisation of these measures[39] or the way in which user-controlled learning packages are organised and supported. It is therefore very difficult to determine how open these measures really are. For example, the Middle East Technical University's project is delivered through eight courses over a period of four semesters. Due to the lack of information however, it is not possible to identify differentiated requirements within individual training paths. This is a perfect illustration of the distinction between the concept of openness and that of distance. In this particular case, there is certainly a distance factor in the learning processes (90% of the total programme), but learners seem to have little or no freedom of choice, including control over the educational approach and organisation of the measure.

Similarly, it would be unwise to assume that the integration of ICT training processes is automatically accompanied by an innovative approach to education. The same example shows how the design of more traditional measures impacts on the ways in which innovative measures are managed. It does seem to be difficult to completely break away from traditional university-type models, since although the measures make considerable use of modern media, many of their basic features such as paper documentation, systematic organisation of face-to-face group sessions, division into semesters, final examinations on the university campus and performance checks are still strongly influenced by the academic model.

The data collected enabled us to identify from the outset several models of e-learning, or rather of blended learning, some of which combine two or more educational strategies. Foremost among the latter were project-based learning, product-based learning, sandwich courses, peer tutoring, cooperative learning, self-managed learning and coaching. We have chosen to illustrate the three dominant models.

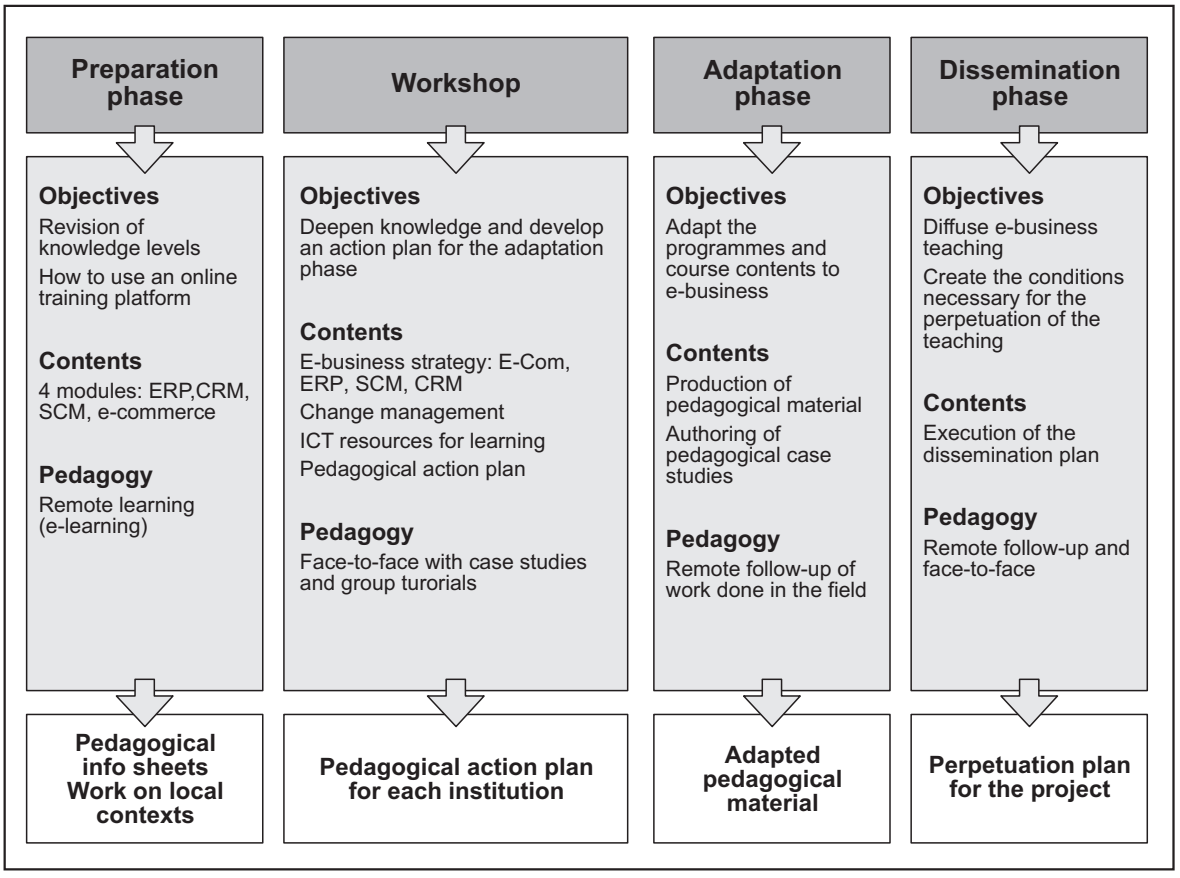
Cooperative learning

The Medforist project in Syria has designed a blended learning model combining face-to-face and distance elements in four constituent stages. Collaborative learning was one of the cornerstones of this project. The aim was to reintroduce a sense of common identity between users, while focusing activities on individual and/or collective output. Setting up a network of lecturers from the same discipline and organising a pool of best practice relating to a number of deliverables associated with the aims of the project but also with training objectives has produced interesting results. The project produced a range of training schemes in the field of e-business and these were designed using existing content. This consisted of cooperative development of contextualised content in 'virgin' territory using existing slides, articles, case studies, bibliographies and CD-ROMs.

This distance and face-to-face work of analysis, design and adaptation, in this case producing a CD-ROM in Arabic providing an introduction to e-business, was based on a strategy of project-based learning. The project was therefore the starting point, the motive for learning. It was also a synthesising factor through which participants could be mobilised at the end of or during the course to engage in an actual forward-looking task, in this case a market study designed to increase the supply of training and analyse the institutional context for the development of e-learning. The use of a distance learning

39 By reference to the Geographical Education National Implementation Project grid for the assessment of individualisation levels in programmes.

platform made it possible to transfer training resources to the preparation phase as content input, while the intermediate face-to-face stage, when learners were brought together, served to intensify the analysis of content and develop the adaptation strategies prior to the production of material.



Finally, it should be emphasised that the success of this measure rests in part on its two-track model: this means that the track for training trainers must be coherently designed. The beneficiary trainers and/or teachers are given the opportunity to experience open and distance learning for themselves and by so doing be immersed in training situations similar to those they will go on to provide for their own students and at the same time, to analyse the methods used in order to make them transferable.

Experience has shown this to be an effective approach. The Design and Development of e-Learning Courses in Pre-service Teacher Training project in Israel is based on the same principles: collaborative learning by means of a platform and forum, a peer-tutoring strategy aimed at developing a reflective attitude and at broadening the scope for interaction between participants and collective work on building a database. As for the more informal model of the virtual conference, it develops the two-track model with what seems to be very interesting results.

The ITP project in Lebanon is also rooted in both the project-based learning strategy and collaborative learning. Both teachers and their schools are actively involved. All teachers must produce a deliverable according to a formal description within a given time limit. The project involves them in a variety of activities such as research and information sharing, communication with their peers, study and reflection on educational practices and the presentation and assessment of the project. The overall strategy is based on the

idea that teachers learn better through interaction with their peers and through exposure to a wide range of learning situations.

Learning by doing

The Training Master Trainers in Ostim project in Turkey is based on learning situations in laboratories within a resource centre where the emphasis is on doing. This serves to contextualise learning situations more effectively and simulate informal training in the workplace. The theoretical occupational content is provided by offline training media in an equipped resource centre, thus allowing for different learning speeds in self-managed learning situations. This merging and alternation of theory and practice is fully consistent with the sandwich course model or dual training. This strategy ensures that the learning of occupational practices and conduct with real technology in real work contexts is accompanied by theoretical learning in a training centre.

Jordan's Enhancing Technical Training and Employment Opportunities for Jordanian Women project is based on a similar strategy; its main features are a high degree of contextualisation (training in the use of business applications for the textile industry) and assistance in skills transfer through the production of a garment from a template.

Self-managed learning

If there is one model that stands out from all of the case studies, it is that of self-managed learning accompanied by tutoring in resource centres. The use of facilities, whether static or mobile, equipped with multimedia materials be they online or not, is a recurring feature in about half of all cases. In some countries, it is the dominant learning mode. The nature of the resource centres varies from local and regional Cisco academies in Algeria to university learning centres in Morocco. Measures designed for a target group spread out over the entire country can localise training by making use of a network of access points. In this way, those who do not possess the right hardware can access training wholly or partially in the form of distance learning.

In Jordan, the three projects listed are based on this type of configuration and organised along the following lines: the resource centres are equipped with computers, a video projector, a printer, a scanner and a multimedia kit. Two team leaders are in charge of the project, one responsible for educational matters and the other for technical matters. Training content is not online but instead is installed on each computer as well as being available on CD-ROM. Due to bandwidth problems, monitoring is conducted without a learning management system (LMS) by means of a Microsoft management module. Learners work in pairs. Some of the learning processes are based on the transmission model: in the initial stages, the trainer uses the video projector for a slideshow showing the main objectives and skills to be achieved. Then, in the second part, workshop participants are asked to work on their own, although they are monitored throughout the learning process. It is difficult to determine whether the educational strategy in this case is one of self-managed or programmed learning[40]. Some proponents of self-managed learning are in fact trying to find ways of reproducing this strategy. We know from experience that some editors of off-the-shelf content, particularly in the Microsoft Office

40 In general, this is a finely detailed sequential programme of learning processes based on a thorough theoretical analysis and involves the provision of learning activities and exercises designed to elicit the target performance as effectively as possible.

package, offer this type of approach, in which the margin of freedom given to learners is very narrow contrary to the principle of learner-centred training.

Possible limits of the models described

It should be noted that the rules of at least two projects – one in Turkey and one in Lebanon – require potential beneficiaries to possess basic skills in order to take part in the training initiative. In fact, in both projects, training is offered to those who possess a good educational background and have already acquired at least the following computer skills: Windows, Microsoft Office Word and PowerPoint. This prompts us to ask whether these prerequisites are not somewhat out of tune with the aims and objectives of those projects, namely providing easier access to training and developing new educational practices. It comes down to a choice between an exclusive measure and one which, from the very start, includes the aim of developing learners' autonomy. We also know that the more open a measure, the more it will encourage individuals to be autonomous.

3.3 Technical architecture and how ICT is being used

Paradoxically, data on how information and communication technology (ICT) is actually being used to deliver training are scarce and even virtually nonexistent in some cases. Most reports mention which tools are being used but do not give any insight into how they are being used.

The kind of tools in use include:

- tools of the LMS type, designed to deliver training, with the full set of associated functions (e-mail, forums, chat rooms and tools for the administration, management and delivery of training);
- content editors;
- online assessment tools;
- PowerPoint presentations in cases where projects involve the use of resource centres combining self-managed learning and presentation and offline content on media similar to CD-ROMs.

Two projects enable us to assess the educational potential of these various tools – the Design and Development of e-Learning Courses in Pre-service Teacher Training and the Online Conference in Teacher Education projects in Israel.

In the first of these projects, three out of four virtual sessions used the aforementioned tools, with special emphasis on asynchronous virtual learning in the following forms:

- discussion forums, facilitating exchanges and interaction not only between teachers and learners, but also between learners;
- collaborative work towards a joint output for subsequent inclusion in a database and the use of an online assessment tool to involve learners and provide them with an overview of their own training path.

In the second project, the synchronous platform made it possible to hold a genuinely accessible virtual conference, the participants having downloaded the said platform to their own computer. This virtual environment enabled them:

- to give presentations of articles and discuss their relevance collectively in synchronous mode;
- to give more theoretical presentations or present a case study;
- to use hypertext links to a selection of relevant sites or multimedia presentations;
- to organise a guided tour of interesting sites;
- to engage in debates with access restricted to a panel of contributors;
- to debate in a large group;
- to take part in virtual workshops;
- to take part in the interactions of special interest groups.

3.4 Project management and structure

Choice of model

At this stage in our investigations, we can identify two models: the first is more strongly project-based, and the second relates to the training activity itself.

The integrated approach

Tunisia has adopted an interesting model that combines the results of various projects[41] comprising various components including infrastructure, a production unit, LMS and a resource centre. Although this approach did not at first seem to add up to a comprehensive strategy, the end result – the design, production and implementation of a complete and functional system – is impressive. The process took a relatively short time – between three and four years. This approach goes beyond the organisation of an individual intervention, because some or all of the components that Cenaffif has produced could be reused in future initiatives.

The multiplier/cascade approach

In Algeria the Microsoft School project is supported by expert trainers with Microsoft certification. In each of the vocational establishments, the trainers will conduct training activities and facilitate their assimilation by other trainers. The Cisco project will also be based on the multiplier effect provided by training specialised trainers at three regional Cisco academies. These trainers will then be given responsibility for training professionals to obtain certification as Cisco-qualified trainers at local academies.

In Syria, the World Links Professional Development project is based on this same principle. An initial group of 60 secondary school teachers trained in the use of ICT in education will go on to train a total of 500 teachers.

In Lebanon, the ITP project is also based on the cascade effect. A group of 17 expert trainers are to train 500 teachers.

In Jordan, the aim of the ICT Literacy Training and Certification project is to train 60,000 teachers, 2,100 of whom work in vocational schools. The first phase was subcontracted to a university which trained a core group of 1,000 teachers. The ministry then selected the best of these to roll out the measure, which has been delivered to

41 Open distance learning cooperation project with the National Association for Adult Vocational Training (AFPA, France), MedNet'U project with the EU and consolidation of the Skills-based Training project in cooperation with Canada.

50,000 teachers to date. This has helped reduce the per capita cost of the workshop from US$330 to US$75 plus US$25 for certification.

In general terms, project teams are usually a small group of people, mainly computer scientists. Many project promoters outsource the management of their project; this is the case in at least 13 of the 25 projects, at least for the initial stages of design and piloting. The partner organisations, particularly those in the technological field, be they multinationals or universities, remain highly involved in running projects, something which suggests that there may be a scarcity of organisations capable of managing e-learning projects. That, however, has still to be confirmed. Using this model implies a certain amount of risk. Service providers may become overly dependent on the partnering body and do not have control of the project. Moreover this means a packaged model is to some extent imposed on providers and it may not be entirely geared to the context of the project. The need to develop local capacity for planning and designing courses is a key issue for many countries.

The experimental approach

Experience of open and distance learning has demonstrated that there has to be room for experimentation so that project managers can feel free to incorporate lessons learned from a pilot scheme in their quest for continuous improvement. Managing an innovative project inevitably entails blind alleys and trial and error and calls for a measure of fine tuning in the course of the project. Experience has shown that contexts[42] are the dominant factor. In a number of countries it is clear that this pilot phase is vital before implementing a project on a wider scale.

Matching partnership models and types of contribution

It is clearly difficult for a single operator to cover every aspect of project management. This explains the need for partnerships and, for more than half of the projects, the outsourcing of project management.

The main types of contribution made by partner organisations are:

- provision of digital content and programmes, something which points to the shortage of offline and online digital content (content editors such as JMS-DLL, NetG and SkillSoft[43]);
- provision of tools to equip projects (such as LMSs);
- provision of infrastructure (IBM server), equipped laboratories (MESKA Foundation);
- financial input;
- provision of expertise (design and management of projects).

Under the World Links Professional Development project in Syria, World Links Arab Region supplies content, programmes, slideshows and books. Syrian NGO Firdos provides equipment and technical support while the Ministry of Education meets participants' incidental expenses.

---

42 Form of organisation, history of the company or institution, innovation culture, management systems and methods and existing training practices.

43 Publishers of digitised material and programmes.

In the absence of an institutional promoter, some private bodies end up taking on responsibility for training teachers and trainers even though this is not their core business. This is the case for the Eduware company in Lebanon[44].

It is also possible to rely on in-house expertise. In Morocco's Med Net'U project, content development is the responsibility of the Moroccan partner organisations, which are developing 40 hours of training for the State Secretariat for Vocational Training and 90 hours for the remainder of the nine training modules leading to the ECDL. In Israel, the universities rely on their own expertise to develop all the requisite infrastructure and content.

Cost and funding

In most cases, budgets for the projects and training measures are either nonexistent or not formally accounted for. Moreover, in cases where a training measure is not a dedicated part of the project, there are no details at all about the teacher training element. In almost all projects surveyed, the different components of the cost structure are not broken down. It is therefore difficult to conduct any meaningful analysis based on the small amount of data available and to draw any conclusions about the economic models on which the measures are based.

The dependence of all promoters on one or more third parties seems to be common practice. This comes in the following types:

- input from major providers of computer technology such as Intel, IBM, Cisco or Microsoft for infrastructure and/or applications as well as off-the-shelf programmes in the form of digital content – sometimes even involvement in project management;
- provision of funding or expertise by governments, usually European, under development and cooperation agreements;
- financial inputs from the EU;
- funds from dedicated budgets of the relevant ministries (in most cases, the ministry of higher education);
- provision of expertise and human and technical resources from public institutions and private bodies operating in the field of ICT;
- provision of funding, programmes, content and equipment by NGOs (World Links Arab Region and Firdos);
- provision of content editors on platforms and online courses (supplied by NetG and Skillsoft for example), and input from international organisations (United Nations).

Implementing e-learning measures entails a lengthy and complex process of design. In most countries few service providers have the capacity to put together all the human, technical, technological and economic resources this calls for.

44 '[…] although Eduware cannot replace a comprehensive national plan for TTT with clear guidance and viable steps for implementation which, in the first place, rests with the Ministry of Education and Higher Education as the prime education *chef d'orchestre*' (Lebanon background report).

Some financial data

In Turkey, the Training Master Trainers in Ostim project had a total budget of US$680,000, 95.5% of which was devoted to renting equipped laboratories for the implementation of the measure for only half a day per week, 3% to the dedicated resource centre for self-managed learning and 1.5% for multimedia content on CD-ROM. The total budget in relation to the present number of beneficiaries amounts to US$22,666 per head. We know that training in technical disciplines calls for infrastructures. We also know that one of the characteristics of the funding of e-learning is that the initial investment is often higher than the cost of staging the workshops. It is therefore important to conduct a careful assessment of the target groups, particularly in terms of throughput levels, and of the viability of activities, which, in this particular case, could be carried out in a more traditional way for a much lower unit cost. The project description contains no comparative analysis. Nine-tenths of the budget was provided through cooperation agreements between Germany and Turkey.

The State Secretariat for Vocational Training in Morocco, promoter of the ECDL project, financed the project from its own budget. The cost is estimated at €500 per trainee for a 90-hour course, which works out at a very reasonable per capita rate of €5.55 per hour. The overall cost of the Med Net'U project is estimated at €5,137,000, 80% of which is being funded by the EU, with the partner organisations providing the remaining 20%. The MEDA I and MEDA II programmes have a total budget of €170,000 for 82 four-day workshops with a total of 1,232 participants. Each workshop costs around €2,000 or €500 per day.

In Algeria, the Microsoft School project has a budget of €600,000, divided into three portions for network infrastructure, consultancy and training services. The cost of operating 33 Cisco academies is estimated at US$10,000 per academy, making a total of US$330,000.

In the Occupied Palestinian Territory, the Palestinian-Finish Education programme, which aims at contributing to the improvement of quality of education and includes the training of trainers as one of its main objectives, has an estimated cost of €3.2 million.

In Syria, the World Links Professional Development project, which aims at training 60 teachers initially and then a further 500, has an estimated cost of US$12,000 for 40 hours' face-to-face instruction of 60 people in a training centre (US$200 per trainee or US$5 per trainee per hour). The Medforist project has a total budget of €94,000 (€74,400 from the EU and €19,600 from the Higher Institute for Applied Sciences and Technology) and is providing professional development for four teachers, the design of an e-business learning package and the training through multipliers of trainers, students and business managers.

In Jordan, the ICT Literacy Training and Certification project has trained some 50,000 teachers for the ICDL involving 100 hours training at a cost of US$100 per head, including the cost of certification. The Use of ICT in Teaching and Learning project, for its part, has a unit cost of around US$150 and is training 14,000 teachers, 100 of them from the field of vocational training. Each programme comprises about 160 hours training. The Ministry of Education provides half of the funding for this programme, the remaining cost being met by Intel and World Links.

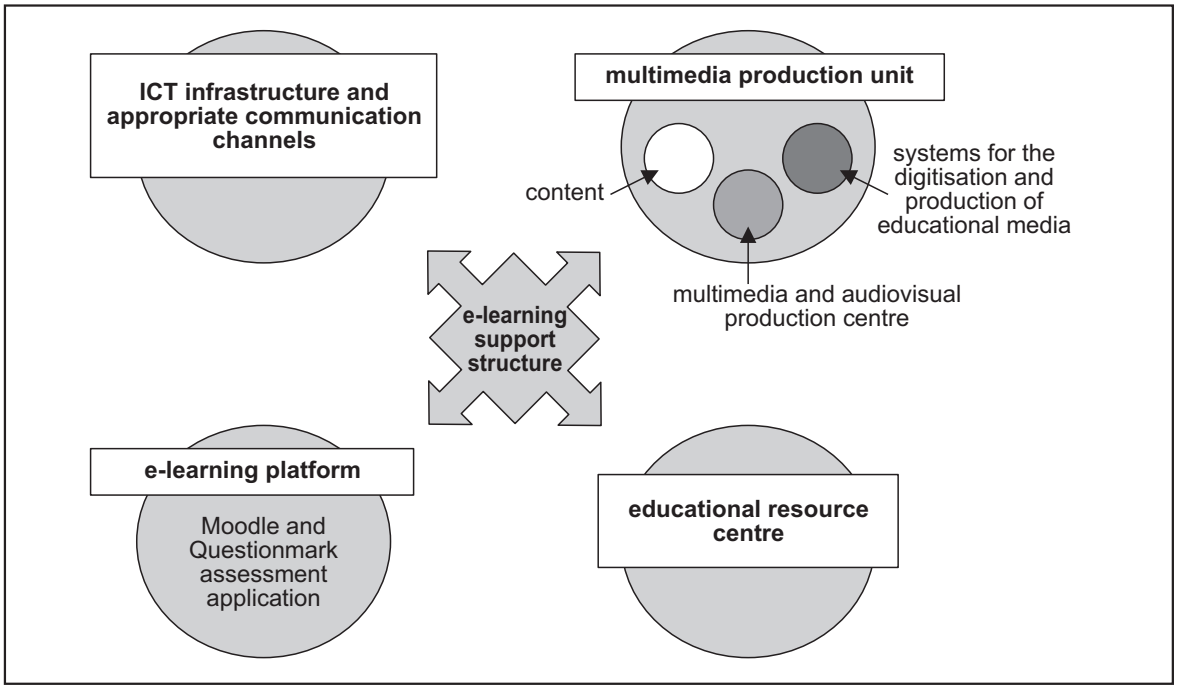
It is clear that specific context is the main factor that determines cost: the nature of partnerships, the configuration of training measures (technical architecture and educational organisation), which disciplines are targeted, the kind of digital content (substance and form and method of production), the target groups (numbers and levels of ability) and the duration of the measure will all affect the final cost.

3.5 Accumulated benefits and potential for passing them on

Participating in an e-learning initiative, whether or not it is dedicated to the training of vocational trainers and teachers, has clearly enabled institutional players and the government ministries on which they depend to acquire new human and technical resources. These can now be used to help incorporate ICT into the training of trainers and teachers and beyond. If a new initiative for trainer and teacher training is to be implemented in the countries of the Mediterranean region, it seems important to identify the elements, both national and regional, on which it could be based.

In Tunisia, Cenaffif now has the main components it needs to carry out open and distance learning: an ICT infrastructure[45], a multimedia and audiovisual production unit with a content production system, a resource centre, the Moodle open-source platform to deliver the training and an online assessment system. The Cenaffif team also has the skills required to run all of these components.

Structure of Cenaffif e-learning facilities



45 Eight servers, 150 computers, printers, video projectors, access to the fibre optic network and a satellite connection.

Four training of trainer modules are available: ICT initiation, applying educational psychology, conducting a training sequence and the use of communication in training. Methodological tools are also available: a content writer for electronic media and a user's manual for a distance learning platform. These resources form a useful toolkit which could be shared with other countries in the region.

In Algeria, setbacks experienced during the Serpolet (System for Education and Updating by Computer Linking Expertise and Technologies) project prompted trainers to become skilled at choosing LMSs, multimedia content editors (learning content management systems) and, in the process, become familiar with the guidelines and standards – the Shareable Content Object Reference Model[46] (Scorm) and the Aviation Industry Computer-based Training Committee[47] (AICC) guidelines and recommendations – which guarantee interoperability between the various types of content and delivery media. In addition, the project has at its disposal a pool of Microsoft certificated trainers who can provide face-to-face or distance tutoring. In the short term, this can be supplemented by a network of resource centres (Cisco academies), which can transmit or receive open and distance learning.

In Morocco although the Interactive Television for Distance Learning (TVI) project was not specifically targeted at VET, it did manage to design an entire system for distance learning. This was built as a territorial network using transmitter and receiver sites and has proved its worth in terms of the large number of people trained and its significant outreach to remote areas. Online content is also available.

In the Occupied Palestinian Territory, even though most activities did not target VET and there is no adequate overview of these activities, there have been a number of interesting developments which could form the basis of a more ambitious project. The University of Birzeit has established a Centre for Learning Innovation which could serve as a research unit for programme and course design, defining methodology for creating digital content or helping select technology for future vocational training projects.

In Syria, Firdos has enabled three mobile resource centres to be created, equipped with 17 computers and a server; it provides a training package based on three modules, covering an introduction to computing, the Microsoft Office package and using the internet. The Medforist project has also created a model for designing training measures which could be reproduced in other areas of economic activity as well as e-business.

Turkish universities already have expertise in running e-learning projects. There is also a one-off training package available for industry, designed to train master instructors. However demand for this type of package is scarce so there would seem to be little to gain by trying to transfer the know-how behind the measure.

In Lebanon, Notre Dame University has a distance learning platform as well as expertise in running e-learning projects.

---

46 A collection of standards and specifications for web-based e-learning.

47 An international association of technology-based training professionals providing guidelines in the development, delivery and evaluation of computer-based training and related training technologies.

In Jordan, the links established between the two projects – ICDL and the Use of ICT in Teaching and Learning – provides an example of good practice in project design which could be of interest to other countries. This potential for transferability is also true of the cooperation procedures with Intel and World Links. Moreover, the management of the project, based on the cascade principle, is very cost effective. Last but not least, 80 hours of additional courses have been developed on the basis of the educational principles underlying these projects. Once its format has been validated, this content could be shared.

The methods used to design Turkey's scheme for the textile industry and the Training Master Trainers in Ostim project in Turkey can be also seen as an example of good practice for the vocational training sector.

In Israel, all the necessary expertise is available. Tools in the form of synchronous and asynchronous platforms, online assessment and collaborative work exist and are operational. A certain amount of content is also available, although it would not be transferable to other countries in the region. At least three methods used for designing Israeli activities could serve as models.

4. WHAT IS THE ADDED VALUE OF E-LEARNING FOR TRAINING TRAINERS?

One of the biggest advantages of introducing ICT into training processes is that it obliges people to question the educational, organisational, economic and political dimensions of how training systems are organised.

We should not forget that developing new training methods impacts on every aspect of existing systems. It can also bring about tangible changes in broader society by developing new products and services, helping define and organise new forms of production, influencing changes in job and skills profiles, helping companies and individuals reposition themselves in their markets or giving rise to new economic models.

These social changes occur at a very different rate from the almost Brownian motion of technological innovation. Education and training structures must therefore keep abreast of these changes and address the eternal tension between organisation and innovation. In other words, they must manage the routine process of production on the one hand while still being inventive and creative on the other.

4.1 Difficulties and opportunities in developing e-learning for the training of teachers and trainers

Setting up an e-learning initiative is always a process of innovation which often consists of:

- a new way of looking at the problem;
- a new way of responding to it;
- collective action by several players and new forms of collaboration;
- the production of new skills;
- the incorporation of the project into a medium-term process with explicit strategic aims;
- monitoring and evaluation mechanisms.

It is important to stress that e-learning never happens spontaneously. Introducing ICT into education and training systems always meets with resistance at one level or another. In the same way the body reacts to a virus by trying to neutralise or destroy it, organisational structures will often reject innovation or try to ensure that it does not penetrate beyond the circle of the first initiates[48] and therefore does not challenge the status quo.

48 'The transition from the traditional structured environment to one that is flexible and breaks out of the usual framework is an evolutionary process [rather] than a reform. This process involves a paradigm shift or thought and flexibility, and more pragmatically, a physical change in the structure of the buildings in educational and training institutions, a change in the structure of employment of teachers and teacher trainers in colleges, and a change in school budgeting, etc.' (Israeli background report).

By analysing the data collected in the country reports, we have identified a number of common features in various dimensions. It goes without saying that these features can be obstacles or levers depending on the way in which they are handled.

Political considerations

The importance of a strategic vision

The key question here is whether there is a strategic approach to develop new and innovative training models. The lack of a solid and comprehensive political strategy can delay innovation and change and even put them at risk. This is a major reason why many initiatives do not develop beyond the pilot phase, have little impact or grind to a halt.

As the country reports make clear, in most countries this strategic framework does not exist. There is also little effort made to coordinate actions between the key operators and decision-makers in ministries, education authorities or training providers. Public and private institutions responsible for training in general and for the training of teachers and trainers in particular are rarely involved in developing strategic approaches and action plans.

A more coordinated approach could maximise synergies and thus achieve economy of scale as well as providing greater coherence in the development of new training models[49].

The need for ownership and commitment

A lack of ownership and commitment among those more directly involved can also delay or put at risk the success of initiatives. From the country reports, it is clear that there is a need for more involvement of, for example, heads of schools in developing new initiatives and action plans to boost change and develop new training methods[50].

There is a need for those in charge of setting up new projects to spend more time raising awareness before the project launch, not only among the target groups such as the trainers and teachers who stand to benefit, but also among their superiors. This could also provide a useful basis for assessing the feasibility of projects.

It is essential to involve managers, trainers, teachers and students when trying to introduce change within an organisation as this can help create acceptance. When new training models are introduced into traditional education, there is often a resistance to change. For many it means calling into question the status quo, including their skills and their professional status. For older or more traditional teachers and trainers in particular, the introduction of ICTs in training and education can have very negative connotations; it can mean a loss of power and the riskiness of being exposed to new practices for which they do not feel ready.

---

49 ‘That suggests that vocational schools and institutes, along with private sector involved in vocational training outcomes, have to come up with a common vision, strategy and action plan to implement a nation-wide vocational strategy’ (Jordanian background report).

50 ‘Managers and school principals have to be the first supporters to teachers and trainers. Through proper workshops, these people can, accordingly, change their mindset’ (Jordanian background report).

The case for e-learning must therefore be made by showing how using ICT adds value to the learning process. This implies the need for an impact assessment study, a study assessing the pilot schemes that have been conducted and a systematic exchange of good practices. If this new e-culture is to spread, it must be planned and supported by the relevant institutions every step of the way.

Technical considerations

Infrastructure

Although it is clear that technology alone will not change methods of training, plans to introduce ICT into education and training systems must take it into account. The choice of technology and features should form part of a clear strategy based on an accurate analysis of training needs bearing in mind the existing skills of students and teaching staff, the availability of space, connection accessibility and financial resources.

Such an approach should result in an efficient use of resources and avoid the trap of buying expensive infrastructure that may then be underused. As is shown by the country reports, in the majority of cases countries have borne this in mind.

In Tunisia, Cenaffif has invested heavily in setting up technical architecture for new training methodologies: first by setting up ICT infrastructure to host websites on vocational training, information systems and integrated management systems. Cenaffif then established its own multimedia production unit and now has its own distance learning platform and online assessment system. It seems to have everything it needs to design, establish and operate a flexible training scheme.

In Algeria, agreements have been reached to upgrade the network infrastructure, with a virtual vocational education centre planned and an intranet which can be used to share the output of several training institutions.

As indicated in Chapter 1 of this report, in most Mediterranean countries, gaps in infrastructure still exist which could jeopardise plans to integrate ICT into education and training. It is therefore not only a question of availability of resources, good planning and strong motivation but also one of what can realistically be implemented taking into account national capacities and time constraints.

Access and compatibility

Using resource centres to provide access to technology is one way round the lack of hardware, not only for training centres but also for individual learners. Even if these centres do not offer high speed connectivity, they can still be used to offer individualised and mediated training by using either offline digital content or satellite transmission.

It must be emphasised that developing new training practices is only possible in the region if there is enough digitised content available, whether it be online or offline. Content must also be available in Arabic[51].

51 ‘Readymade e-based training packages are not available in Arabic language. However, designing and authoring such a material is very expensive and demanding […] the availability of Arabic-based e-material helped a lot in disseminating the training on a large scale’ (Jordanian background report).

Moreover, the Serpolet project in Algeria shows how important it is, when choosing an LMS tool, to give some thought to the problems buying proprietary systems can cause. They can make it impossible to incorporate certain types of content or to transfer content from one system to another, although we know that, in some countries, every university has its own LMS. It is essential to work with interoperable systems and encapsulated content must be developed according to current standards, namely Scorm and the AICC guidelines.

Finally, unless it is accompanied by systematic onsite or remote technical support for users, using tools such as LMSs, learning content management systems or videoconferencing could prove off-putting for learners. There must be local technicians on hand to carry out hardware maintenance and look after the various tools used by the training scheme. The technology should also be as user-friendly as possible as users cannot be expected to put up with the vagaries of poor bandwidth or distance learning platforms with excessively complex interfaces and a confusing array of features.

Financial considerations

As indicated above, raising funds for an innovative project represents a big challenge, especially in a field like education and training where public funding can be scarce and private centres may not be financially robust. This is certainly true for the Mediterranean countries where start-up funding and sustainability are major problems. Most of the country reports reveal financial difficulties.

In Turkey, teacher training institutions are being affected by budgetary restrictions and are finding it impossible to upgrade their equipment and infrastructure at a time when expectations are rising. Turkey's National Education Council has defined a new frame of reference for pre-service teacher training including VET teachers. It incorporates two compulsory training modules – one on computer applications in education and the other on educational technology and developing materials.

In Algeria, according to the national background report, there is a lack of systematic funding of operations and few resources are allocated to the renewal and maintenance of computer equipment. In Lebanon, the education and training systems are plagued by serious structural problems[52].

In this case, the support of international donors can make all the difference. EU programmes for instance have helped countries to pass from the experimental stage to a more institutionalised model, in which initiatives are rolled out on a significantly larger scale. Canada and Japan have also been active. The support of partner organisations or local operators is also fundamental. Reliance on specialised NGOs, as well as multinational companies for infrastructure, hardware and content, has also eased the financial pressure on promoters.

52 'In fact, there is a great discrepancy among different schools – private, public, vocational and technical – with regard to the availability of ICT for classroom use. This does not help in establishing a comprehensive national policy for ICT integration across the board in all schools in Lebanon. It follows that TTT is affected by this discrepancy' (Lebanon background report).

Organisational considerations

The importance of managing change

The introduction of new training models and methodologies should be an opportunity for the whole of the organisation. Thus it is essential that changes are managed in a way that involves the whole organisation.

New training practices have a direct impact on the management of human resources in training centres. As well as changing occupational and skills profiles, the call for rethinking the model has an impact on the organisation of programmes, service provision and learner throughput.

With e-learning, the early stages of introducing a new methodology do not usually entail major organisational change, as they are often linked to a small pilot project involving a small team. E-learning is typically introduced alongside traditional teaching and training methodologies, making it difficult in the beginning to assign staff exclusively to this activity before it takes off.

Ensure local ownership of initiatives

Almost all countries surveyed showed a tendency to outsource project management and course design. This may cause future problems in terms of know-how in promoting organisations. There is therefore an urgent need to develop in-house teams capable of handling these tasks; outsourcing is a good short-term solution but it generates too much dependence on partner organisations which may prove costly in the long term. The answer is to ensure that subcontracting arrangements include provision for transferring skills, especially for developing content. Nevertheless, it is clearly difficult for a single organisation to amass all the necessary expertise, hence the need for partnerships to share human, technical and financial resources.

A second point that does not always get the attention it deserves is the question of continuity. Seeing as these initiatives are pursued within a medium to long-term time frame, it is essential to have stable teams and to keep systematic project records[53]. In Algeria the lack of continuity due to changes in management has proved a real obstacle, made worse by the fact that when people leave they take the history of the project with them.

The need for good management and recognition

Badly managed human resources can have a negative effect on any initiative and hamper staff development and motivation. In the case of teaching staff, the country reports reveal a general lack of recognition of their skills. This must clearly have an impact on performance and the motivation to get involved in new initiatives.

There are also obstacles related to the specific structure of the education system in different countries such as the low status of trainers, low wages or few opportunities for

53 'High turnover rates of personnel in e-learning projects jeopardise [their] sustainability […]. Therefore, institutions should [aspire to become] learning organisations in which experience of individuals and institutional know-how is systematically recorded and used' (Turkish background report).

career development. In the case of e-learning, as we have seen above, this can add up to a generalised resistance to the introduction of this new pedagogical model, in which many do not see any added value.

It is often the case that when a trainer takes on a new initiative, he or she receives little recognition and no financial reward for the efforts made. Such people are often pioneers who work on the periphery of their organisation and whose work goes largely unrecognised. This naturally has an impact on the motivation to change. It is hard to imagine how to persuade teachers and trainers to make a commitment to a new activity if there are no mechanisms that allow them to make time for training. Similarly if there is no means of recognising new skills (in this respect, end-of-course certification is imperative) or financial rewards[54] for developing new teaching methods or designing new programmes and content, motivation will be low.

In the case of the MEDA-ETE project's component on e-learning, teachers enrolled in the pilot course have had their time studying officially recognised. In reality the majority had to study during their free time after work or at weekends or in holiday time. It should be noted, however, that in many cases institutions have recognised the effort made and the importance of the initiative, and even if it was not possible to free up trainers' time during working hours, institutions did provide support in other ways. These include providing facilities for face-to-face sessions and for developing and integrating new courses into the curricula and by giving official status to e-learning as a method to be used alongside traditional methods. This has been the case for example in Israel, Jordan and Turkey.

The quality assurance process

Including a formal and transparent quality assurance system is another important ingredient when designing and implementing e-learning schemes. Defining precise aims and performance indicators based on a feasibility study before implementation, combined with a subsystem of planning and control[55], involving bodies such as management committees, monitoring committees and a planning and control committee should make it easier to deal with the complexities and uncertainties.

Educational considerations

Which e-learning methodology is most appropriate?

From the analysis of educational models provided in Chapter 3 of this report, it is clear that the preferred model for e-learning and one which is likely to remain so is the blended approach. This model provides learners with a mix of channels to access education and training. It is not only the blend of face-to-face sessions with the tutors and distance learning sessions which makes it popular, it is also the chance to use different instruments and technology such as CD-ROMs, videos or downloaded teaching material.

54 'Having this training tied in with an incentive and promotion system makes for a very successful way of disseminating the programme all over the country' (Jordanian report).

55 In Syria, the country report refers to two structures involved in quality control: an evaluation committee and a technical adviser.

This has several advantages: individualisation of training paths, the possibility of accommodating different speeds of learning and profiles, localised assistance and a human face.

It should be stressed however that there is no one right methodology. The choice should take several factors into consideration, such as the expected learning outcomes and the profile of target group and teacher. In some cases, e-learning may not be the right solution or the only one.

This explains the need for training needs assessments. In most projects analysed, the measures that have delivered good results are generally those that were based from the outset on a robust analysis of the training needs and expectations of both the beneficiaries and the organisations for which they work. There appears to be a clear need to bring the expectations of organisations for developing their trainers' and teachers' skills in line with the working environments in which these target groups exist, since the two are sometimes poles apart. In short, you can only transfer learning outcomes into working situations if the latter can accommodate them[56]. It is therefore important to contextualise training and to incorporate realistic workplace situations into the training material from the very start.

Prerequisites and profile of target group

Setting admission requirements such as computer literacy are exclusive rather than inclusive. Two types of response have been made to this problem. Firstly, a measure can take the form of a two-part scheme: first bringing teachers and trainers up to scratch in the basic uses of ICT, followed by occupational training, whether this means upgrading their skills in the context of a particular discipline or developing new training practices. Jordan[57] has developed this type of approach, as has Israel. Another approach involves including a pre-training stage designed to train beneficiaries in the use of the tools, such as LMSs, that will be used throughout the training.

Whichever approach is adopted, the autonomy of beneficiaries must be respected. The more open the measure, the more control will be given back to learners and the more their aptitude for self-management will be nourished. Not all beneficiaries possess this core skill. It is therefore essential to move beyond tutoring in the use of technology and teaching methods to devote some attention to fostering motivation and organisation skills.

As the Turkish initiative Foreign Language Training through Distance Learning shows, the tutors themselves have to be trained, time slots for synchronous tutoring must be negotiated and each individual's profile must be assessed before their training path is decided. According to the Turkey country report, a contributing factor to the high dropout rates was the fact that online office hours of virtual instructors were decided upon without prior knowledge of the trainees. Some trainees also said that the results of the proficiency test did not reflect their real level of proficiency and that they got bored during the courses as a consequence. This also affected the attendance of those trainees.

---

56 'Teachers are typically faced with a number of obstacles that hinder them in applying the acquired competencies at work' (Palestinian report).

57 The ICT Literacy Training and Certification, and Use of ICT in Teaching and Learning projects in Jordan.

4.2 Learning from good practices

Good practice can be defined as follows: '[…] initiatives, projects and activities that have a tangible impact on improving trainers and/or teachers' skills, professionalisation and working environment; and which are proven to be sustainable in their social, pedagogical and organisational components and/or through [bringing about] lasting changes in policy and decision making[58].'

It is difficult at this stage in our study to determine to what extent the projects described in the country reports are based on good practice. This is due to two factors. The first is that these projects cannot be examined with the benefit of hindsight, since more than half of them are still being implemented or have not even begun. The second relates to the nature of data available. In some cases, data were not sufficiently refined to allow objective conclusions to be drawn. In others, data were either not available or not accessible. To provide a more comprehensive inventory of good practice at regional level, further analysis and investigation would be necessary.

Bearing these limitations in mind, it is possible to tentatively suggest some characteristics that have led to meaningful results and have had an impact on trainers and teachers as well as their environment. The elements listed below are not intended to describe an ideal training scheme but are drawn from the projects described by the national experts. On that basis, they may be regarded as ten broad principles for the conduct of future projects, although the list is by no means exhaustive.

4.2.1 Adopt a project-based approach

The Medforist project in Syria has managed to get past the experimental stage – and that, we must stress, is a fairly rare occurrence. From the outset, the project was geared to the transfer and dissemination of its achievements. It managed to design a service package delivered through e-business skills centres and to develop a shared set of practices with participation by a diverse group of people – 46 teachers of e-business from 12 institutions. What is more, vocational training centres and companies benefited from the experience, the schools by participating in the regional network of centres of expertise and the companies by training their managers and staff. Teachers benefited from the scheme as learners by obtaining new skills and were able to envisage the transfer of training outcomes. This project-based approach clearly increases the motivation of participants and encourages beneficiaries to feel committed to the training measure.

4.2.2 Create learning situations that promote practical applications of knowledge and team work

Learning by doing, combined with a collaborative approach to work, are seminal practices. The process of coproducing content adapted to the national context and forming a learning community allows participants to share at the same time as they pursue their own professional development both in their subject field – e-business – and in the basic principles of e-learning and developing digitised content. Practices of this kind straddle the boundary between e-learning and knowledge management. In the grid below, these learning situations are plotted in relation to a knowledge management model[59].

58 MEDA-ETE draft methodology document on e-learning in the Mediterranean region (unpublished).

59 See Jean-Yves Prax, *Le Manuel du Knowledge Management*, Dunod, 2007.

Learning situations and knowledge management matrix

Why? / For whom?	To optimise processes	To make decisions and listen to clients	To upgrade skills	To innovate
Community based on common interest				**Discovering**
Pool of practices			**Sharing**	
Project group		**Responding**		
Permanent staff	**Producing**			

4.2.3 Contextualise learning situations

Turkey's Training Master Trainers in Ostim project is built around learning situations linked to work situations. The Enhancing Technical Training and Employment Opportunities for Jordanian Women project in Jordan has used developments in the textile industry to offer activity-based training in a new business application. This approach makes it possible to simulate real life workplace situations. Theory on adult education has shown that adults will learn easier if learning situations are highly contextualised.

4.2.4 Build an approach based on multiple learning situations alternating face-to-face and distance learning

Most of the training schemes analysed exclude the most extreme form of e-learning, namely pure distance learning which uses only electronic media, and favour the mixed form of training known as blended learning. In this type of configuration, the training process combines directed and self-managed learning, face-to-face and distance learning, individual and collective work, content inputs and learning by doing.

4.2.5 Use resources in Arabic to achieve scale and accessibility

Using technology in training systems should try and avoid introducing any extra complications; otherwise it will be difficult to motivate beneficiaries who may already have little inclination to embrace a new approach. If they are confronted with training content that is not contextualised, does not contain familiar elements of their culture and is not accessible in their mother tongue, there is a good chance that the content will only benefit a small inner circle of trainers and teachers, namely those who are most highly motivated and have a good grasp of English or French.

4.2.6 Monitor progress and adjust the learners' support mechanisms

It is well known that open and distance learning encourages learners to be autonomous. When selecting prospective learners, it is difficult to determine precisely the beneficiaries' learning profiles and to assess their ability to manage their own learning process. This means that the educators must monitor their progress regularly and be alert to the kinds of slippage that often lead to failure, especially in measures based on scenario 5 (see Annex 1). The scheme[60] piloted by the Middle East Technical University in Turkey includes a monitoring subsystem which serves to provide continuous evaluation through satisfaction surveys, based on questionnaires and formal and/or informal interviews. Learners are also given a pre-course and end-of-course test. This approach ensures a certain level of educational quality. The scheme had to be adjusted to involve the introduction of more collective face-to-face learning situations and more guidance for distance learners. The continuous adjustments to the scheme are one of the reasons for its success.

4.2.7 Base initiatives on a national network of access points

As internet access is not available to all in the countries surveyed, delivering a training scheme across a country or region should be considered through a national network of access points. Roughly half the measures under examination use this form of organisation, which serves, on the one hand, to bring training activity under one roof and, on the other, to generate a cascade effect by rolling out projects rapidly to reach people in remote areas. It can also individualise the training process by helping beneficiaries gain autonomy through local tutoring and encourage a more human relationship between the trainee and the training scheme. In cases where the local infrastructure does not permit the delivery of online content, access points can overcome these constraints by providing offline digitised content or material transmitted by satellite.

4.2.8 Make use of existing expertise, both in-house and external

Public-private partnerships and the use of external expertise are certainly valuable assets. Most training providers could not begin to design e-learning schemes without external help as the complexity of the task and the initial investment required do not allow providers to act alone. Most of the projects studied incorporate this partnership dimension through the input of universities, technical colleges, suppliers of computer technology and software, NGOs, content editors or training providers. The Training Master Trainers in Ostim project in Turkey clearly illustrates the need to pool the expertise of various partner organisations.

4.2.9 Recognise and reward achievement

Providing certificates to trainers and teachers who complete their training is a key to keeping their motivation and commitment intact. ICT projects based on packaged provision such as those of Cisco and Intel as well as the ECDL and ICDL automatically lead to the award of a certificate. This not only serves to recognise skills acquired and reward the beneficiaries but it can also boost career opportunities and give teachers and trainers a sense of active participation in the educational reforms currently underway in all Mediterranean countries.

---

60 Information Technology Certificate Programme.

4.2.10 Set up a project team and create a network of intermediary players

The complex process of implementing e-learning is far removed from traditional short courses or workshops and calls for project-based organisation. Designing these schemes has many dimensions that transcend a purely educational framework. Therefore it is important to harness all the requisite skills within one or more teams and to create an appropriate structure to lead the project. However just using a project-based form of organisation is no guarantee of success. For example although the Foreign Language Training through Distance Learning project was built on a full project team, the project ground to a halt due to the team's lack of experience in project management. Project management does not lend itself to improvisation.

4.3 Summary

Most of the country reports agree in saying that the measures implemented to date have served to:

- develop a number of training of trainer practices and, as a result, teaching practices, even if the gains in the latter area have been modest in some cases;
- increase familiarity with technology in general;
- decompartmentalise teams and make institutions more open to their surroundings;
- spread training across countries and regions and overcome geographical obstacles to reach into rural areas;
- facilitate access to training for sections of the population previously underserved;
- develop new forms of organisation;
- enhance the quality of training through greater contextualisation and individualisation of training processes;
- create a degree of competition between teachers and trainers;
- boost people's self-esteem and increase their employability;
- create a network of experts in e-learning.

5. CONCLUSIONS AND RECOMMENDATIONS

Training teachers and trainers using new information technologies is a very important field for many reasons. If governments wish to make progress in this domain, there are a number of steps they can take, as the country reports have shown. These include:

- creating the structural conditions for the development of online training;
- promoting joint financing arrangements with the private sector, in particular international companies operating in the country;
- introducing more coherent and better coordinated policies.

As things stand, there is not enough data to allow us to draw any useful conclusions on the impact of e-learning on the overall quality of training so far. According to the available information, we can conclude that many teachers and trainers have not yet received any training in ICT and that the training provided, while using the latest technologies, has failed to integrate a new pedagogical approach centred on the student and his or her learning process.

Furthermore, if we take a closer look at the analysis contained in the previous chapters, a number of strategic areas for future action emerge.

The first involves examining the education system and its links to other sectors such as telecommunications or manufactory in order to improve the coordination and coherence of government policy. The final aim would be to optimise investment and better define the goals of using e-learning. One could start by defining a more coherent national framework for action, for example through asking a higher authority to come up with a strategic vision and coordinate efforts across various organisations and ministries in order to put this vision into practice.

The second aspect represents one of the biggest challenges and relates to what we hope to achieve by introducing e-learning into teacher and trainer training. The professionalisation of trainers and teachers may seem the obvious answer but it is not that simple as there are many sides to professionalisation. The main issue is to pin down what should be the core work of teachers and trainers who are training people to operate in fast changing labour markets. Governments must be able to identify and stimulate the emergence of new teaching practices on the one hand and on the other to set up mechanisms for recognising, accrediting and valuing the change of status and skills development of teachers and trainers.

The private sector is becoming increasingly important to the economies of the region, therefore it makes sense for governments to facilitate the formation of public-private partnerships with companies active in the new technology sector. As we have seen, partnerships can help develop new initiatives and build new structures at a

lower cost. But partnerships also have their drawbacks, in particular by making institutions dependent on third parties for both technology and expertise.

Donors can play an important role by providing funding and other resources to facilitate the development of e-learning systems in the Mediterranean region. But any intervention must help develop local expertise and encourage the production of material adapted to the local context both in terms of language and culture.

Finally, our study shows that the sheer complexity of designing an e-learning course and the amount of resources it calls for mean that it cannot be done alone. Pooling ideas, know-how and best practice with other countries is one way round this. Producing digitised material in an economically viable way has to be done for several countries to achieve economies of scale. Working in a regional network acts as a real lever; seeing as the market for publishing multimedia material is practically nonexistent in most countries of the region, one country on its own is bound to end up depending on the multinationals for content development.

We can only conclude this report by wishing that it may contribute to policy discussion regarding the final goal: that the training teachers and trainers receive act as a lever for improving quality and relevance of vocational training and teaching in countries of the Mediterranean region.

Annex 1: Scenarios describing the degree of integration of ICTs into training systems

Scenario1: From classroom to enriched classroom

Main characteristics

Enrichment of classroom lessons through the use of a projector and audio tools such as slide shows, videos, DVDs or video conferencing.

Conditions for successful implementation

Formalisation of material, increased scripting, rooms for broadcasting and receiving equipped and maintained, training of users (trainers and beneficiaries).

Scenario 2: From classroom to improved classroom

Main characteristics

Trainers are able to publish material, prior to the training sessions such as exercises, methodological sheets, lessons, advice or web links, and after the training session such as access to support used in the classroom, self-assessment and self-teaching tools or possible exchanges between trainers and trainees.

Conditions for successful implementation

Formalisation of material, increased scripting of supplementary media, rigorous planning of training time, monitoring and analysis of work carried out upstream, positioning tools.

Scenario 3: From classroom to streamlined classroom

Main characteristics

The most important content is delivered in the classroom but certain modules or sequences are conducted as independent study using the multimedia facilities of a resource centre. These sequences can be planned and organised by trainers but are monitored and taught by a local third party.

Conditions for successful implementation

The material is more formalised and the degree of modularisation of the courses is greater. It is also necessary to organise time for trainees to do self-managed study, to

provide tutorials and to establish a meaningful link between local training time at the resource centre and other training time such as meetings at the training centre or university. Creating positioning tools is essential.

Scenario 4: From classroom to reduced classroom

Main characteristics

The main part of the training is carried out without the trainer present. The latter sets the objectives at the start of training, intervenes in real time or not, in face-to-face meetings and/or at a distance in order to provide explanations, lead discussions and exchanges of information, motivate students or carry out assessments.

Conditions for successful implementation

Teams of trainers need to come up with effective ways of individualising courses. A well equipped resource centre managed by local people allows people to do self-directed learning within the framework of permanent interaction. This calls for a robust distance learning system that allows the training to be well run and managed as well as positioning, assessment and tracking of beneficiaries. It must be administered and maintained. Supervisors act as instructors but also as local tutors providing motivation and help with time management.

Scenario 5: Almost nonexistent classroom

Main characteristics

Almost all training is carried out without the trainer present. The entire system relies on a digital campus-type virtual environment with administration functions and features for managing students and resources with permanent interactivity. The use of tutorials is very limited; it is local intermediaries who monitor the beneficiaries. Expert trainers travel to the site to set milestones as necessary and carry out assessment at the end of the course. The collective dimension is limited but can potentially be created by organising collective production projects via collaborative work centres.

Conditions for successful implementation

The entire system is based on a virtual training environment. Trainees access this environment either through workstations, at a dedicated location or from home. This approach requires a plentiful supply of digitised material through modularised and customisable courses which will require regular updating. The virtual campus is maintained by a team of technicians who also act as the interface between service providers and students. Management is completely decentralised.

Annex 2: Summary of the 25 initiatives

Algeria	
Microsoft School contract	Project objective: Develop ICT skills of teachers and trainers through international certification Target group: Teachers and trainers Organisation: Ministry of Education and Vocational Training Website: None
Cisco project	Project objective: Develop 33 Cisco academies and develop ICT skills of teachers and trainers in computer networks Target group: Teachers and trainers Organisation: Ministry of Education and Vocational Training Website: None
Serpolet project	Project objective: Develop teachers and staff skills in using the Serpolet platform and produce e-content for the vocational education sector Target group: Teachers and trainers Organisation: National Vocational Distance Learning Centre (CNEPD) Website: None
Virtual Vocational Education Centre	Project objective: Set up a virtual training centre Target group: Teachers and trainers Organisation: Ministry of Education and Vocational Training Website: None
Israel	
Development of a Virtual Teaching and Learning Environment in Industrial Schools project	Project objective: Set up an educational portal for e-learning, as a reflection of the pedagogical reality of the school, making those suitable educational activities such as lessons, assignments, tests or social events available online Target group: Teachers and students Organisation: ORT Israel Website: http://webmind.ort.org.il

Design and Development of e-Learning Courses in Pre-service Teacher Training project	Project objective: Integrating ICT into pre-service courses for teacher training, in accordance with new pedagogic principles Target group: Pre-service teacher training students for BSc degree in science and technology teaching Organisation: Department of Technology and Science Teaching at the Technion, Israel's Institute of Technology Website: None
Online Conference in Teacher Education	Project objective: Develop and produce an online conference in teacher training (the International Virtual Conference for Teacher Educators – OGTE 2006 Meeting the Challenges in Education and Teaching) Target group: Teacher trainers, researchers and lecturers concerned with pre-service and in-service education Organisation: Online Learning and Teaching Environments unit of the MOFET Institute Conference website: http://vcisrael.macam.ac.il
Jordan	
ICT Literacy Training and Certification project	Project objective: As part of the five-year national project Education Reform for Knowledge Economy (2003–08), the Ministry of Education is committed to providing ICT professional development for each of its employees, including 2,100 teachers/trainers working in technical and vocational schools Target group: Teachers and trainers (in all schools including vocational schools) Organisation: Ministry of Education Website: None
Use of ICT in Teaching and Learning project	Project objective: Train classroom teachers on how to promote project-based learning and effectively integrate the use of computers into their existing curriculum to support student achievement Target group: Teachers and trainers Organisation: Ministry of Education Websites: www97.intel.com/education/teach/ www.moe.gov.jo/worldlinks/worldlink.htm

Enhancing Technical Training and Employment Opportunities for Jordanian Women project	Project objective: Enhancing the effectiveness and the quality of training programmes by developing and implementing new curricula that are gender relevant and labour market responsive in the ready-made garment sector Target group: Teachers and trainers Organisation: Al-Balqa' Applied University Website: www.ettjw.edu.jo
Lebanon	
Eduware	Project objective: Design an IT curriculum and provide IT training for schoolteachers in public and private general education Target group: Teachers and trainers in general private and public schools Organisation: Ministry of Education and Higher Education represented by the Centre for Educational Research and Development (CRDP) and implemented by Eduware
CRDP Innovative Teachers Programme	Project objective: Design IT curriculum and provide IT training for schoolteachers in the public sector of mainstream education Target group: Teachers and trainers Organisation: Ministry of Education and Higher Education represented by the Centre for Educational Research and Development (CRDP)
IPNET	Project objective: Provide continuous training on the use of ICT for teachers in public schools and in the vocational and training public sector Target group: Teachers and trainers Organisation: National Pedagogical Institute of Technical Training (IPNET)
Virtual Learning Environment	Project objective: Develop ICT skills and content Target group: Teachers Organisation: Notre Dame University in Beirut
Morocco	
ECDL certification	Project objective: Develop ICT skills of teachers and trainers through international certification Target group: Teachers and trainers Organisation: State Secretariat for Vocational Training Website: None

Med Net'U project	Project objective: Set up a regional distance learning Euro-Mediterranean university for higher education and vocational training; the vocational training strand aims at enhancing national capacities for developing e-content through training of trainers and set up a technological platform Target group: Trainers and teachers Organisation: State Secretariat for Vocational Training in cooperation with Nettuno, the Sophia Antipolis Foundation and Eutelsat Website: https://www.uninettuno.it//mednetu/e/skins/mednetu/home/index_800_fr.asp
MEDA I & II programmes	Project objective: Design and introduce new training courses on ICT for technicians Target group: Teachers and students Organisation: OFPPT supported by EU funded projects Website: www.ofppt.ma
Cisco certification	Project objective: Training trainers in computer networks Target group: Teachers and trainers Organisation: OFPPT in cooperation with Cisco Regional Academy and Cisco Networking Academy Website: www.ofppt.ma
Syria	
World Links Professional Development project	Project objective: Train teachers throughout the country at integrating technology into the classroom to equip Syrian children with the skills needed to participate in the global knowledge-based economy Target group: 550 teachers and trainers Organisation: World Links Website: www.worldlinks.org/en/countries/current/syria.html
Medforist project	Project objective: Set up a Euro-Mediterranean network for sharing information systems and technology resources Target group: Teachers and trainers Organisation: Higher Institute for Applied Sciences and Technology Website: http://medforist.grenoble-em.com/

E-learning Services project	Project objective: Promote distance learning and collaborative research Target group: Staff, teachers and trainers Organisation: Ministry of Higher Education in cooperation with the Syrian Higher Education and Research Network (SHERN) Website: www.damasuniv.shern.net/
Tunisia	
Cenaffif initiative	Project objective: Train trainers in ICT and pedagogy through distance learning Target group: Trainers Organisation: Cenaffif Website: www.cenaffif.edunet.tn/
Turkey	
Information Technology Certificate Programme	Project objective: Provide learning opportunities for people who are unable to participate in on-campus courses and programmes due to geographical location or work and time constraints Target group: Staff, teachers and trainers Organisation: Middle East Technical University Continuing Education Centre Website: idea.metu.edu.tr
Training Master Trainers in Ostim project	Project objective: Train 30 masters who have their own business in Ostim region to become technical trainers within the framework of the dual system training scheme Target group: Trainers Organisation: Foundation for the Promotion of Vocational Training and SMEs (MEKSA) Website: www.meksa.org
Foreign Language Training through Distance Learning project	Project objective: Provide foreign language training through distance learning according to international standards Target group: Students Organisation: Directorate General of Educational Technologies Website: http://egitek.meb.gov.tr

ACRONYMS

ADSL	Asymmetric Digital Subscriber Line
AFPA	National Association for Adult Vocational Training (Association nationale pour la formation professionnelle des adultes), France
AICC	Aviation Industry Computer-based Training Committee
Cenaffif	National Centre for the Training of Trainers and Training Development (Centre national de formation de formateurs et d'ingénierie de formation), Tunisia
CIFAP	International Audiovisual and Production Training Centre (Centre international de formation à l'audiovisuel et à la production), France
CNED	National Distance Learning Centre (Centre national d'enseignement à distance), France
CNEPD	National Vocational Distance Learning Centre (Centre national d'enseignement professionnel à distance), Algeria
CNFCPP	National Centre for Continuing Training and Professional Promotion (Centre national de formation continue et de promotion professionnelle), Tunisia
CRDP	Centre for Educational Research and Development (Centre de recherche et de développement pédagogiques), Lebanon
ECDL	European Computer Driving Licence
ENSIAS	National Advanced School of Computer Science and System Analysis (École nationale supérieure d'informatique et d'analyse des systèmes), Morocco
ETF	European Training Foundation
EU	European Union
Firdos	Fund for Integrated Rural Development of Syria
ICDL	International Computer Driving Licence
ICT	information and communication technology
IPNET	National Pedagogical Institute of Technical Training (Institut pédagogique national pour l'enseignement technique), Lebanon
IPST	Higher Promotion of Labour Institute (Institut de promotion supérieure du travail), Tunisia

ITP	Innovative Teachers Programme
LMS	learning management system
Med Net'U	Mediterranean network, Morocco
Medforist	Euro-Mediterranean network for sharing IST learning resources, Syria
NGO	non-governmental organisation
OFPPT	Office for Vocational Training and Labour Promotion (Office de la formation professionnelle et de la promotion du travail), Morocco
Scorm	Shareable Content Object Reference Model
Serpolet	System for Education and Recycling by Computer Linking Expertise and Technologies (Système d'enseignement et de recyclage par ordinateur liant expertises et technologies), Algerian project
SME	small and medium-sized enterprise
TTT	teacher and trainer training
TVET	technical and vocational education and training
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VET	vocational education and training

EUROPEAN TRAINING FOUNDATION

COMPARATIVE ANALYSES
E-LEARNING INITIATIVES FOR TEACHERS AND TRAINERS
IN THE MEDITERRANEAN REGION

Luxembourg: Office for Official Publications of the
European Communities

2009 – 74 pp. – 21.0 x 29.7 cm

ISBN: 978-92-9157-582-4
doi: 10.2816/11895

HOW TO OBTAIN EU PUBLICATIONS

Our priced publications are available from EU Bookshop (http://bookshop.europa.eu), where you can place an order with the sales agent of your choice.

The Publications Office has a worldwide network of sales agents. You can obtain their contact details by sending a fax to (352) 29 29-42758.

etf
SHARING EXPERTISE IN TRAINING
This project is implemented by the European Training Foundation

EUROPEAID CO-OPERATION OFFICE
This project is funded by the European Union

EUROMED

TA-80-09-671-EN-C




Publications Office
Publications.europa.eu

ISBN 978-92-9157-582-4